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3906/103/JOH/21/12204

02/07/20

**GOVERNMENT OF PAKISTAN
MINISTRY OF COMMUNICATIONS
NATIONAL HIGHWAY AUTHORITY**



**RATODERO ~ RAJANPUR ROAD
SECTION - V
(ROJHAN TO RAJANPUR)**

TENDER DRAWINGS

MARCH, 2020



**NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LIMITED.
NESPAK HOUSE
NESPAK HOUSE 2nd Floor Attaturk Avenue, Sector G-5/2 Islamabad- Pakistan.**

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TENDER DRAWINGS



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NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD.

04	JAWAD UL HAQ	DRAWN BY	RAJA SHAFIQ
03	Project Manager	SUBMITTED BY	
02	M/S NESPAK	RECOMMENDED BY	
01		CHD./VER. BY	
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RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

TITLE	SHEET INDEX	SCALE
DATE	DRAWING NO.	REV.
MARCH 2020	3905/102/TD/	S1-01

SYMBOLS

	EXISTING ROAD
	EARTHEN TRACK
	PROPOSED ROAD
	GRAVES / GRAVE YARD
	RAILWAY TRACK
	EXISTING STRUCTURE
	EXISTING PIPE CULVERT
	PROPOSED STRUCTURE
	TELEPHONE POLE
	R.O.W
	LIGHT POLE
	HAND PUMP
	ELECTRIC WATER PUMP
	FILLING POINT (PETROL PUMP)
	OPTICAL FIBER CABLE
	ELECTRIC POLE
	ELECTRIC LINE
	KILOMETER POST

SYMBOLS

	TUBE WELL/WELL
	POND / FISH FARM
	MOBILE TOWER
	TREES
	GARDEN/ ORCHARD
	CULTIVATED LAND
	TRAVERSE POINT
	NULLAH EDGE
	GRID LINE AND COORDINATES
	EXISTING DRAIN
	PYLON
	ELECTRIC WIRE
	BOUNDARY WALL

SYMBOLS

	GAS LINE
	NORTH ARROW
	MOSQUE
	BUILT UP AREA
	LINED WATER COURSE

ABBREVIATIONS.

DWG/DRG	DRAWING
N	NORTHING
E	EASTING
EL	ELEVATION
N.S.L	NATURAL SURFACE LEVEL
E.R.L	EXISTING ROAD LEVEL
VER.	VERTICAL
HOR	HORIZONTAL
I.L	INVERT LEVEL
M	METER
NO	NUMBER
F.G.L	FINISH GRADE LEVEL
N.T.S	NOT TO SCALE
PI	POINT OF INTERSECTION
T	TANGENT
R	RADIUS
C	CHORD LENGTH
L	CURVE LENGTH
E	APEX
M	MIDDLE ORDINATE
VPC	VERTICAL POINT OF CURVE
VPI	VERTICAL POINT OF INTERSECTION
VPT	VERTICAL POINT OF TANGENT
STR	STRUCTURE
BP	BEGINNING OF PROJECT
EP	END OF PROJECT
LONG	LONGITUDINAL
MAX	MAXIMUM
MM	MILLIMETER
R.O.W	RIGHT OF WAY
STA.	STATION
TYP.	TYPICAL
VAR.	VARIES
CL	CENTER LINE
S.B.C	EXISTING SOUTH BOUND CARRIAGEWAY
N.B.C	EXISTING NORTH BOUND CARRIAGEWAY

TENDER DRAWING

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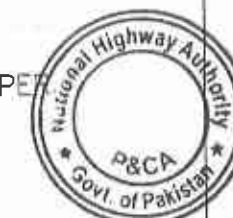
RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

TITLE	SYMBOLS & ABBREVIATIONS	SCALE
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GENERAL NOTES

- GRID COORDINATES & ELEVATIONS ARE BASED ON UNIVERSAL TRANSVERSE MERCATOR (UTM WGS84).
- EACH DRAWING SHALL BE READ IN CONJUNCTION WITH OTHER DRAWINGS.
- NOTES GIVEN ON DRAWINGS ADJACENT TO A SECTION OR DETAIL PERTAIN TO THAT PARTICULAR DETAIL ONLY.
- IMPROVED SUBGRADE SHALL HAVE SOAKED CBR OF 25% AT 95% M.D.D, WHEREAS EMBANKMENT SHALL HAVE SOAKED CBR OF 5% AT 95% M.D.D
- TENDER DRAWINGS ARE INDICATIVE ONLY. CONSTRUCTION DRAWINGS SHALL BE ISSUED IN DUE COURSE OF TIME, AS THE CONSTRUCTION PROCEEDS.
- THE BIDDERS SHOULD CAREFULLY EXAMINE THE BOQ ITEMS AND RATES SHOULD BE QUOTED ACCORDINGLY.
- LOCATION OF UNDERGROUND CABLES/UTILITIES SHOWN ON PLAN ARE APPROXIMATE. EXACT LOCATION SHALL BE DETERMINED BY THE CONTRACTOR AT NO EXTRA COST TO THE EMPLOYER.
- THE CONTRACTOR SHALL ENDEAVOR MAXIMUM TO MAINTAIN UNINTERRUPTED FLOW OF TRAFFIC ON BOTH SIDES OF EXISTING ROAD AND ITS ADJOINING CROSS ROADS.
- ANY DAMAGE CAUSED TO THE UTILITIES DURING EXCAVATION/EXECUTION OF WORK SHALL BE REPAIRED BY THE CONTRACTOR AT NO EXTRA COST TO THE EMPLOYER.
- PROFILE DRAWINGS SHALL BE FINALIZED AFTER TAKING JOINT X-SECTIONS WITH CONSULTANT BEFORE STARTING CONSTRUCTION ACTIVITIES.
- CONTRACTOR SHALL PREPARE AND SUBMIT, SHOP DRAWINGS FOR STRUCTURES, PAVEMENT MARKINGS (LOCATION, TYPE AND SIZE), ROAD SIGNS ETC. FOR ENGINEER'S APPROVAL, BEFORE EXECUTION OF RELATED WORKS WITHOUT ANY EXTRA COST TO THE EMPLOYER.
- SERVICE DUCTS SHALL BE PROVIDED AT JUNCTION LOCATIONS OR AT AN INTERVAL AS DIRECTED BY THE ENGINEER.
- STRUCTURES SHOWN ON PLAN ARE SYMBOLIC. FOR DETAIL OF STRUCTURES SEE RELEVANT DRAWINGS.
- THE LENGTHS, SIZES, SLOPE, INVERT LEVELS AND OTHERS DETAILS OF STRUCTURES AS SHOWN IN DRAWINGS ARE TENTATIVE. THE CONTRACTOR SHALL PREPARE SHOP DRAWINGS OF EACH STRUCTURE LOCATIONS WITH THE REQUIRED SKEW ANGLE AS PER SITE REQUIREMENTS AND SHALL SUBMIT THE SAME TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION EXECUTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO CATER FOR ALL TEMPORARY TRAFFIC DIVERSION DURING CONSTRUCTION TO THE SATISFACTION OF THE ENGINEER INCLUDING DETOUR ROAD AND ITS MAINTENANCE, SPRINKLING OF WATER, GRADING AND COMPACTION WHEN AND WHERE REQUIRED WITHOUT ANY EXTRA COST TO EMPLOYER.
- ROADWAY EXCAVATION MATERIAL SHALL BE UTILIZED IN MOST EFFECTIVE MANNER IN THE EMBANKMENT EVEN WITH BLENDING/ MIXING THE SUPERIOR MATERIALS (IF REQUIRED WITHOUT AT ANY EXTRA COST). ROADWAY EXCAVATION SHALL NOT BE DISPOSED OFF OUTSIDE RIGHT OF WAY WITHOUT WRITTEN APPROVAL OF THE EMPLOYER.
- THE EXISTING UTILITIES SHALL BE SHIFTED AND RELOCATED OUTSIDE THE CONSTRUCTION LIMITS BY THE CONCERNED AGENCIES DURING EXECUTION OF THE WORK. THE CONTRACTOR SHALL ASSIST AND COORDINATE WITH THE RESPECTIVE AGENCIES FOR THIS PURPOSE.
- RETAINING/ DRAINAGE STRUCTURES FOUNDATION SHALL BE PLACED ON FIRM/ HARD STRATA AS DIRECTED BY THE ENGINEER.
- DRAINAGE CHUTES SHALL BE PROVIDED ON HIGH FILL (FILL>3M) AT 50m INTERVAL.
- REACHES DEFINED FOR APPLICABILITY IN TYPICAL CROSS-SECTION ARE TENTATIVE AND SHALL BE ADJUSTED AS PER SITE CONDITIONS/ REQUIREMENT OR AS PER DIRECTIONS BY THE ENGINEER.

TENDER DRAWINGS



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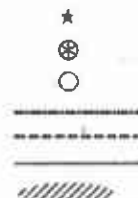
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RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

TITLE	GENERAL NOTES	SCALE
DATE	DRAWING NO.	REV.
MARCH 2020	3905/102/TD/ GEN-01	

LEGEND

NATIONAL CAPITAL
PROVINCIAL CAPITAL
IMPORTANT CITY
INTERNATIONAL BOUNDARY
PROVINCIAL BOUNDARY
ROADS
PROJECT AREA



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RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

TITLE	KEY MAP	SCALE
DATE	DRAWING NO.	REV.
MARCH 2020	3905/102/TD/ KM-01	

LEGEND

NATIONAL CAPITAL
PROVINCIAL CAPITAL
IMPORTANT CITY
INTERNATIONAL BOUNDARY
PROVINCIAL BOUNDARY
ROADS
PROJECT AREA

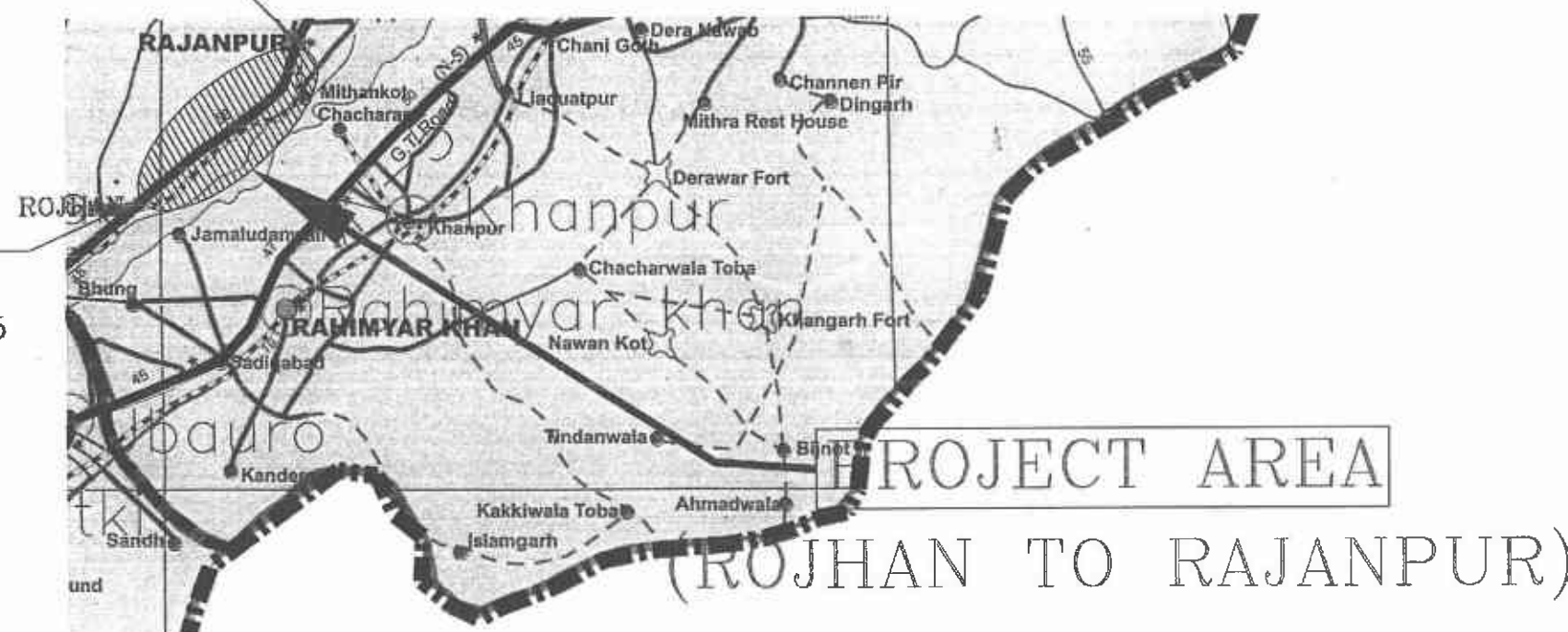


PROJECT AREA

END POINT
265+390
N=3218706.1877
E=629293.2732

START POINT

213+500
N=3184704.0685
E=597561.5333

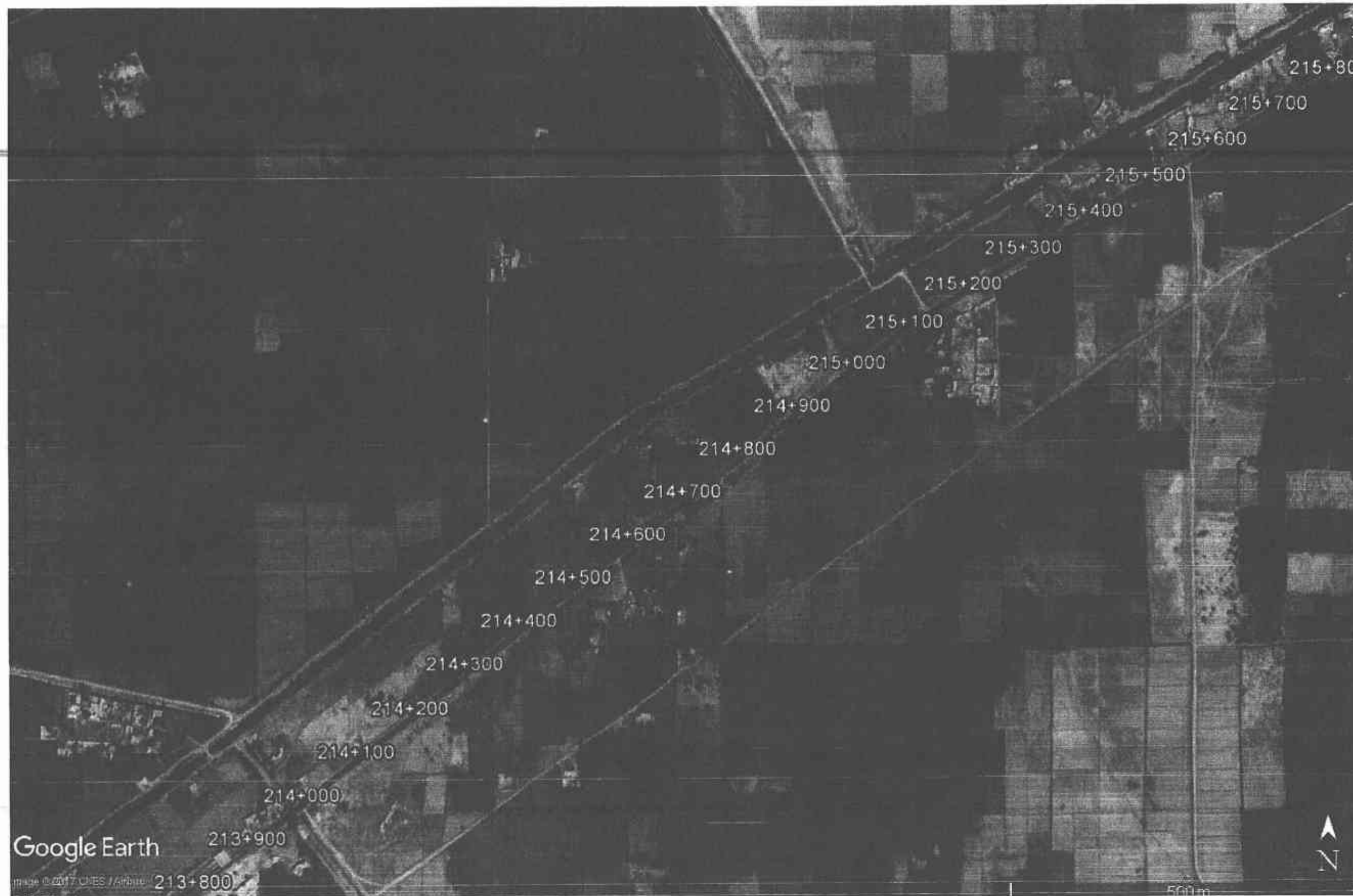


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01				CHD./VER. BY	
REV.	DATE	DESCRIPTION	APPROVED	APPROVED BY	



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		03			SUBMITTED BY			DATE	MARCH 2020	DRAWING NO. 3905/102/TD/ RLP-01	REV.
		02	Project Manager		RECOMMENDED BY						
		01	M/S NESPAK		CHD./VER. BY						
		REV.	DATE	DESCRIPTION	APPROVED	APPROVED BY					

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REV.	DATE	DESCRIPTION	APPROVED	APPROVED BY	

RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

TITLE	ROUTE LOCATION PLAN	SCALE
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DRAWING NO.	3905/102/TD/ RLP-02	



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01				CHD./VER. BY	
REV.	DATE	DESCRIPTION	APPROVED	APPROVED BY	

RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

TITLE	ROUTE LOCATION PLAN		SCALE
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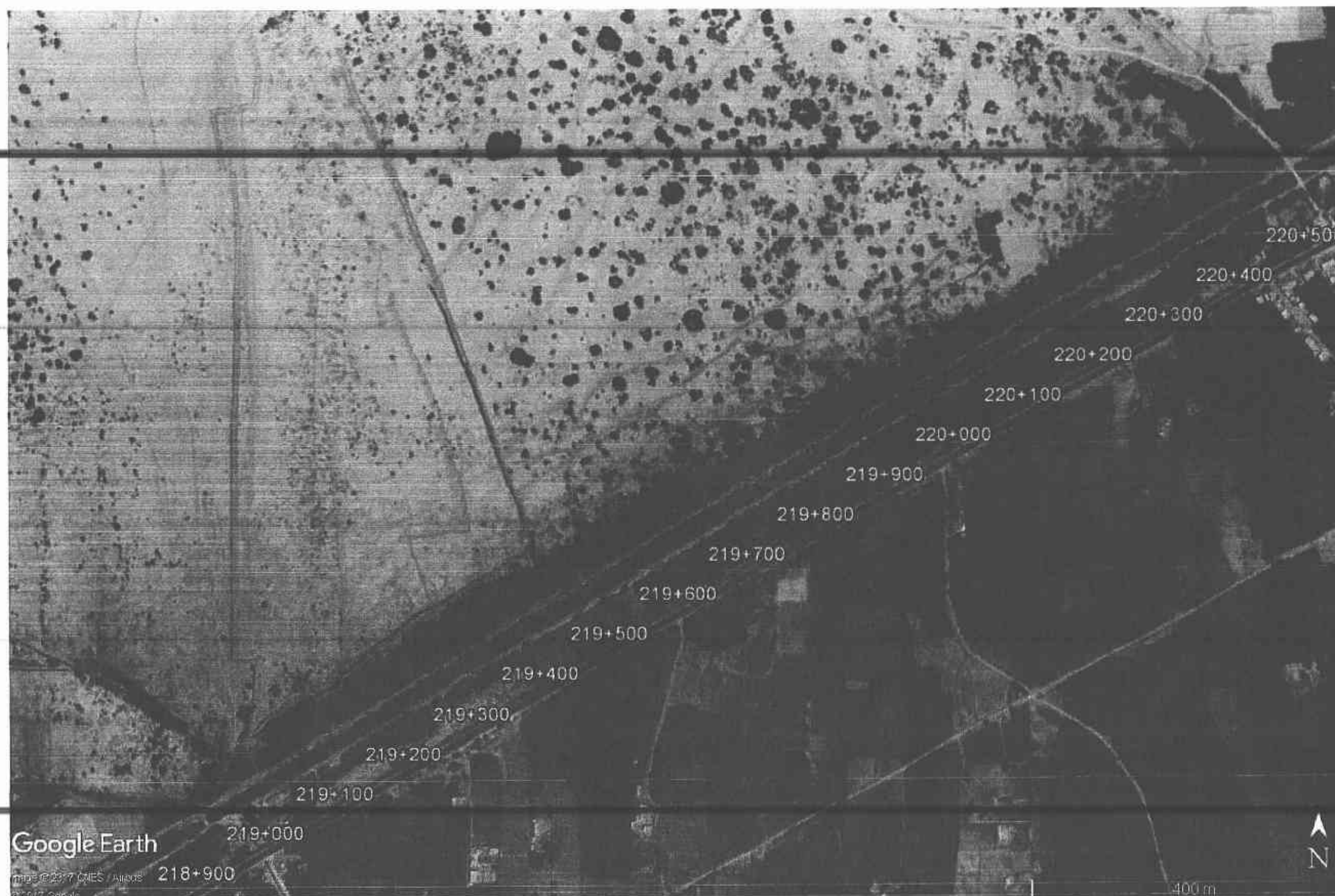
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		03		SUBMITTED BY						
		02		RECOMMENDED BY						
		01		CHD./VER. BY						
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		03			SUBMITTED BY				
		02			RECOMMENDED BY				
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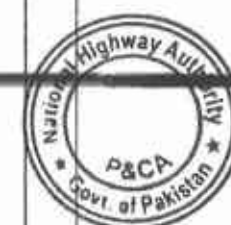
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		03			SUBMITTED BY						
		02			RECOMMENDED BY						
		01			CHD./VER. BY						
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								DATE	DRAWING NO.	REV.	
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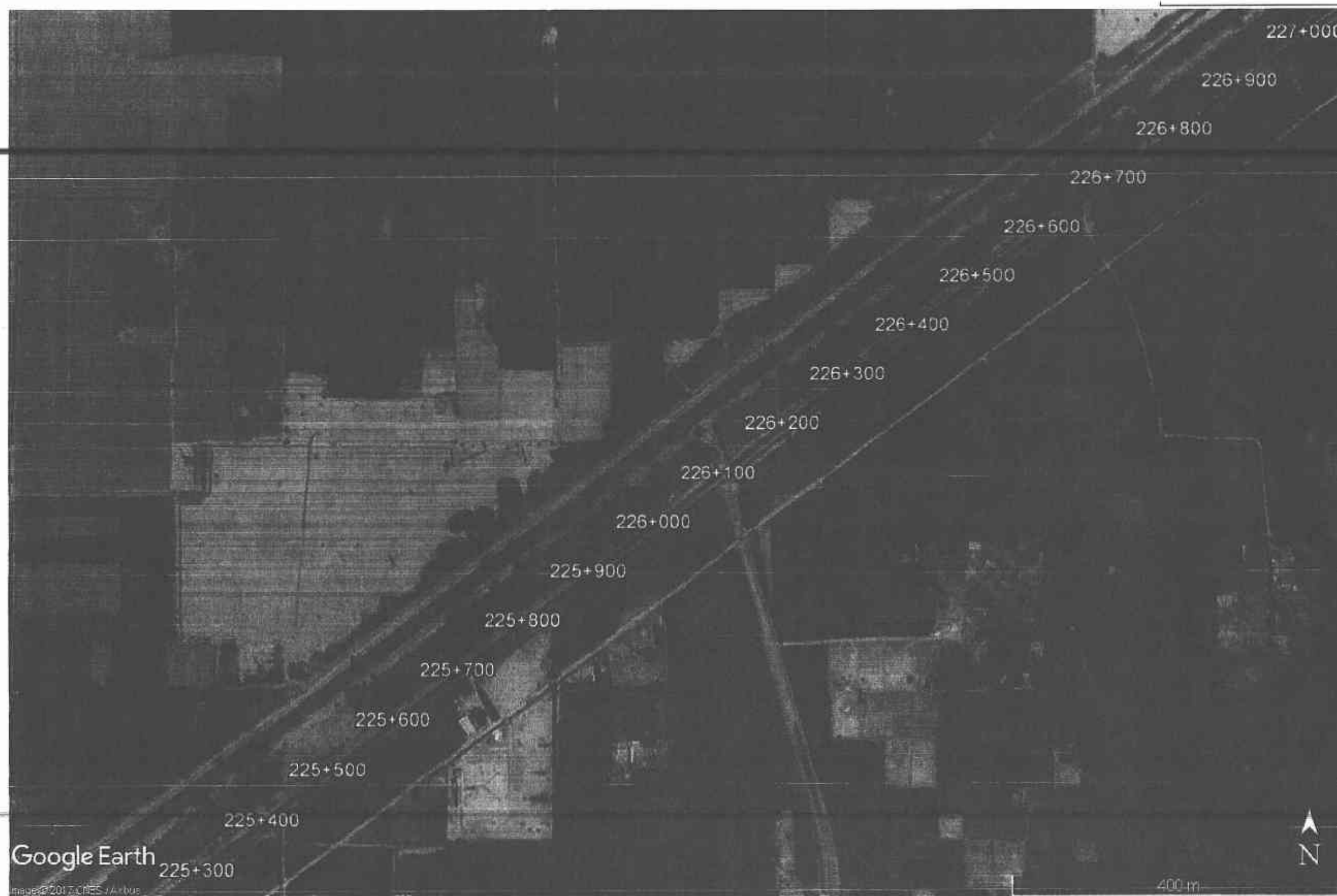
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SECTION-V
(ROJHAN TO RAJANPUR)

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		03		SUBMITTED BY						
		02		RECOMMENDED BY						
		01		CHD./VER. BY						
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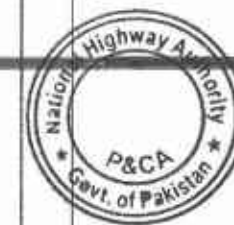
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RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

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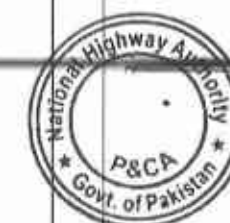
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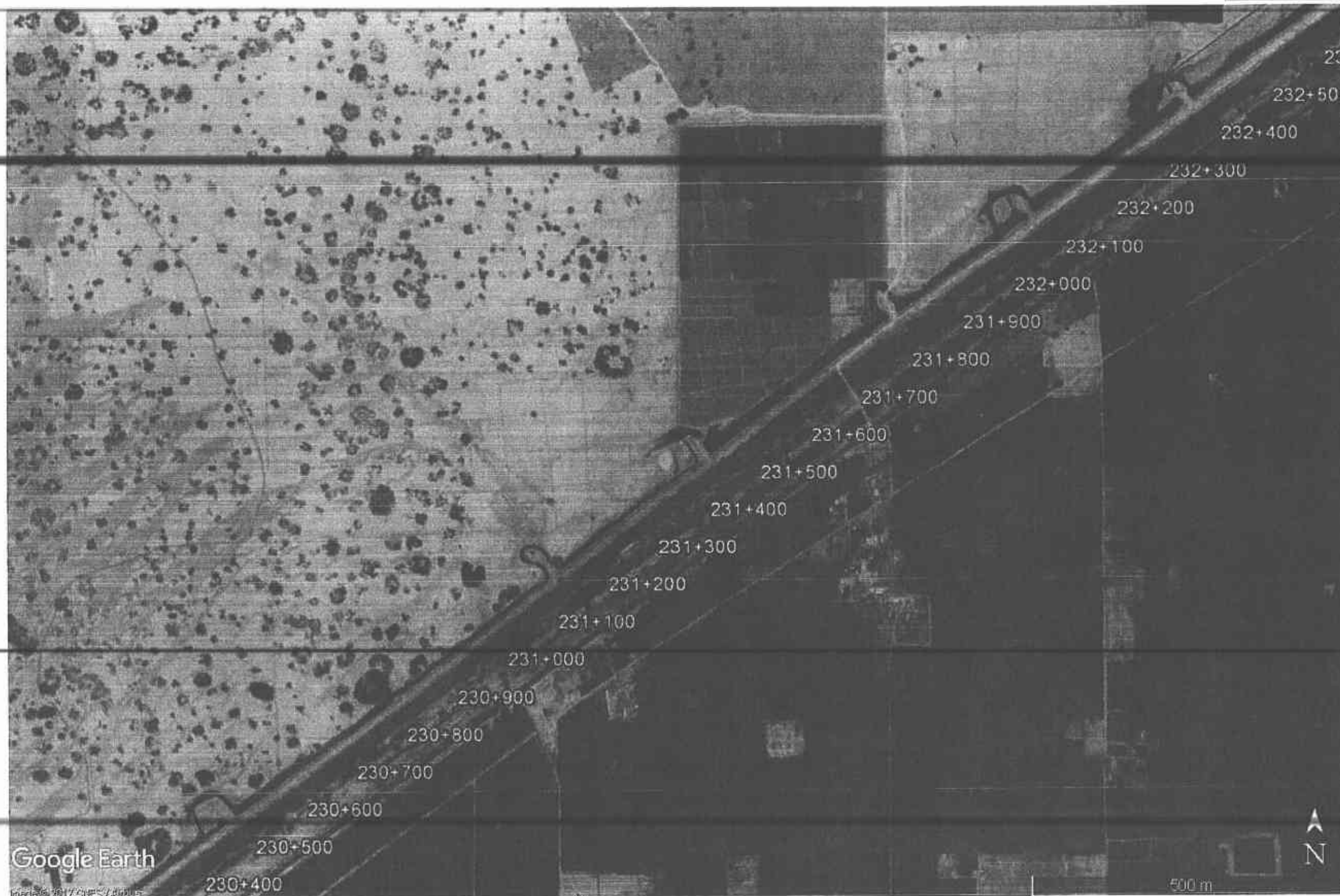
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				03			SUBMITTED BY			ROUTE LOCATION PLAN		
				02			RECOMMENDED BY					
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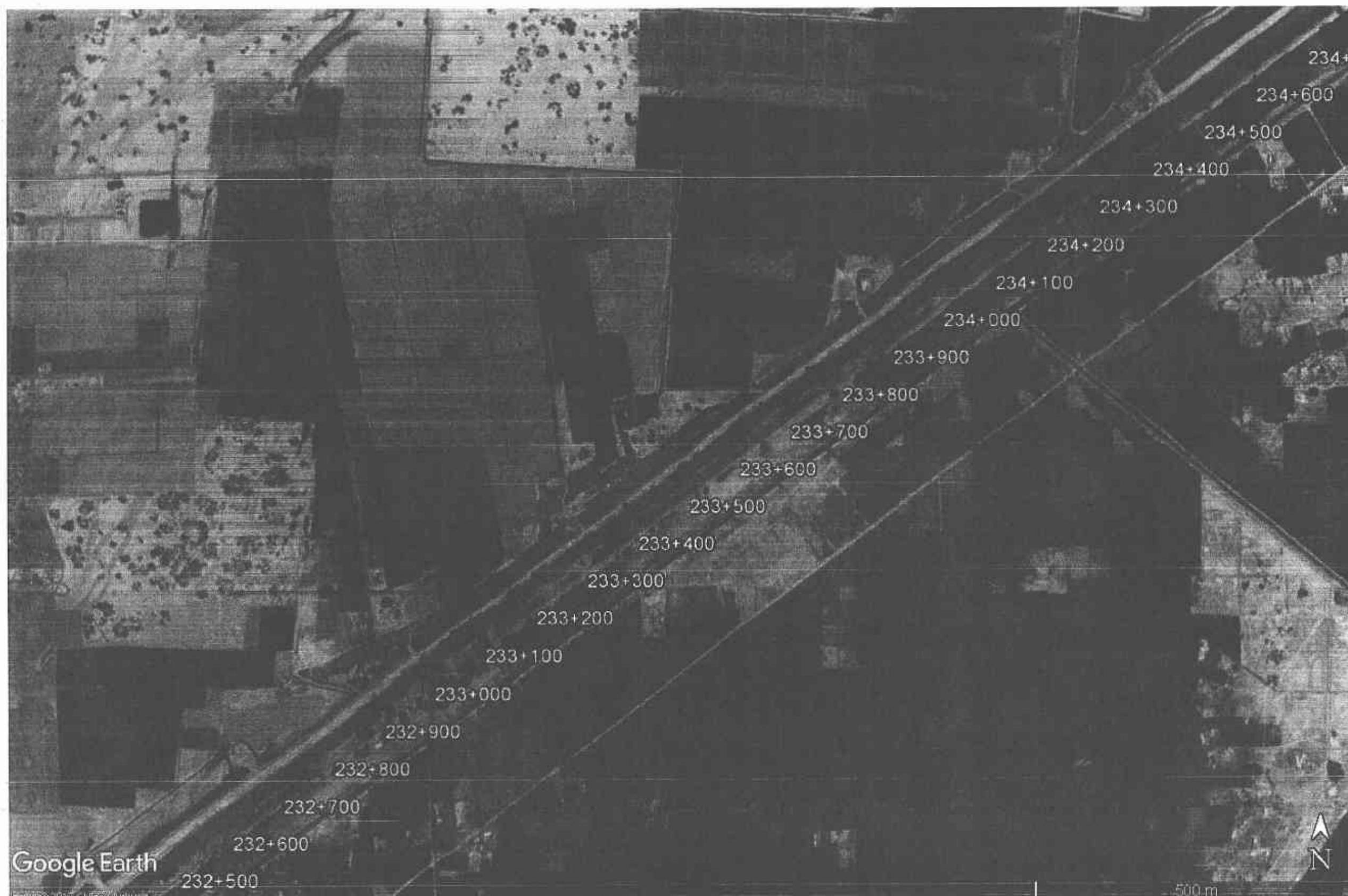
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03	PROJECT MANAGER	HAU	SUBMITTED BY	
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RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

TITLE	ROUTE LOCATION PLAN	SCALE
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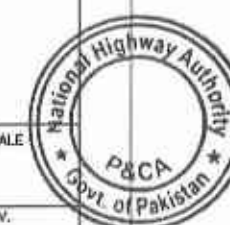


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RATODERO ~ RAJANPUR ROAD
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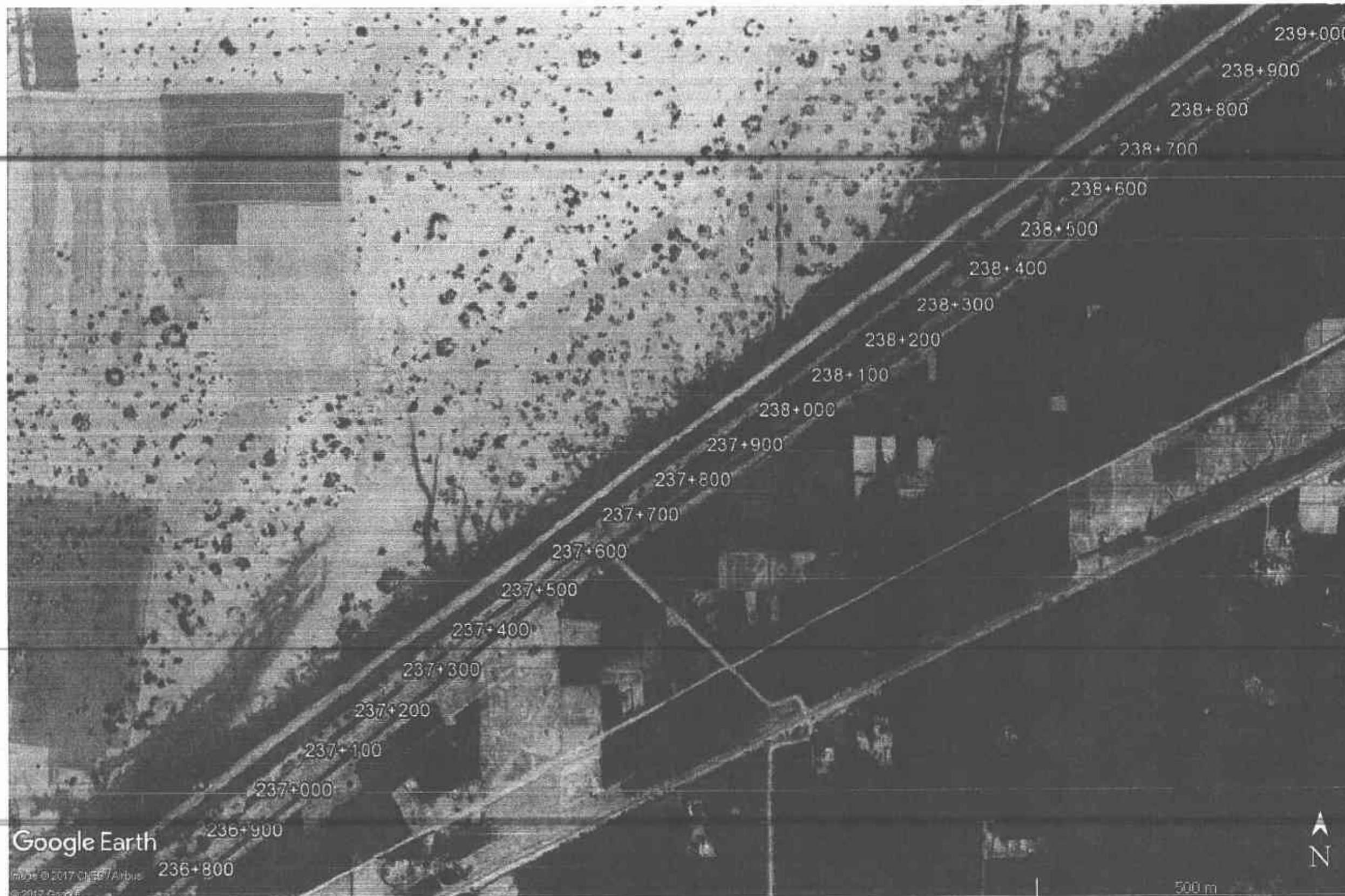
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SECTION-V
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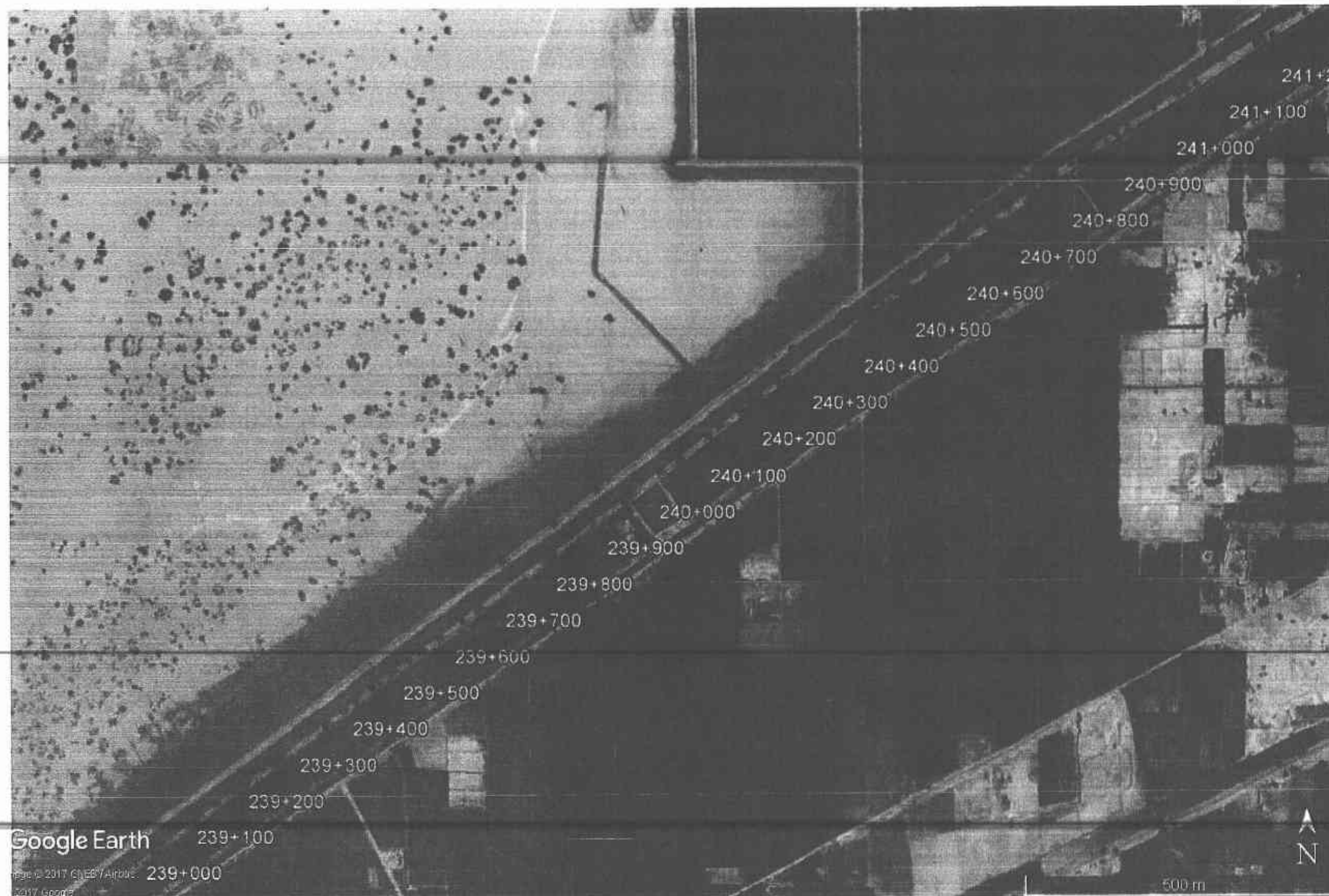
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TITLE	ROUTE LOCATION PLAN		SCALE
DATE	MARCH 2020	DRAWING NO.	3905/102/TD/ RLP-15
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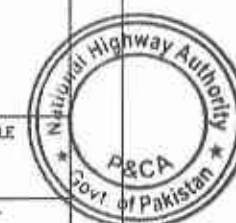
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TITLE	ROUTE LOCATION PLAN	SCALE
DATE	MARCH 2020	REV.
DRAWING NO.	3905/102/TD/	RLP-16



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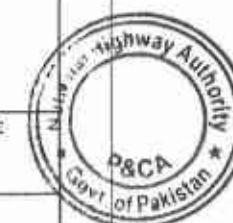


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RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

TITLE	ROUTE LOCATION PLAN		SCALE
DATE	MARCH 2020	DRAWING NO.	3905/102/TD/ RLP-17
REV.			





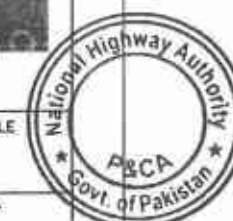
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RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

TITLE	ROUTE LOCATION PLAN	SCALE
DATE	MARCH 2020	REV.
DRAWING NO.	3905/102/TD/ RLP-18	



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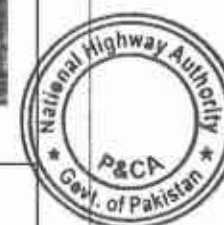
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RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

TITLE	ROUTE LOCATION PLAN		SCALE
DATE	MARCH 2020	DRAWING NO.	3905/102/TD/ RLP-19
		REV.	





Imagery Date: 11/4/2016 42° R 625074.50 m E 3202219.83 m N elev: 189 m eye alt: 1.20 km



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RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

TITLE	ROUTE LOCATION PLAN	SCALE
DATE	MARCH 2020	REV.
DRAWING NO.	3905/102/TD/ RLP-20	



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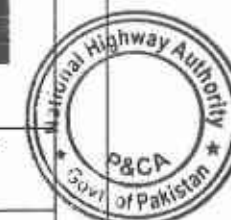
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04	JAWADUL HAQ	DRAWN BY	RAJA SHAFIQ
03	Project Manager	SUBMITTED BY	
02	M/S M. S. S. S.	RECOMMENDED BY	
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REV.	DATE	DESCRIPTION	APPROVED

RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

TITLE	ROUTE LOCATION PLAN	SCALE
DATE	MARCH 2020	REV.
DRAWING NO.	3905/102/TD/ RLP-21	



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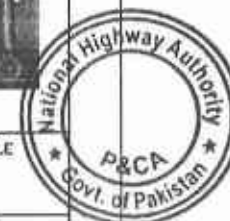


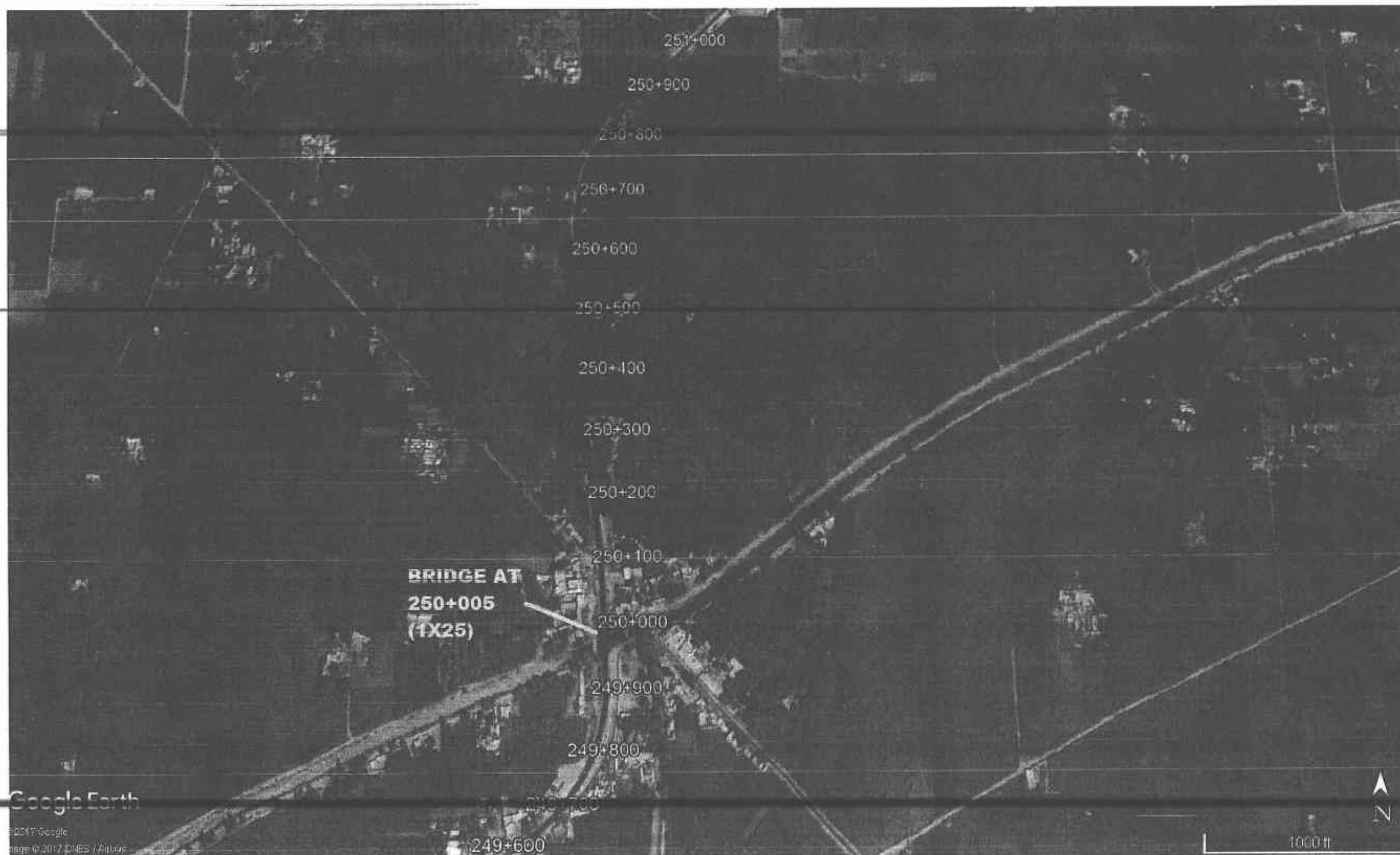
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03			SUBMITTED BY	
02			RECOMMENDED BY	
01			CHD./VER. BY	
REV.	DATE	DESCRIPTION	APPROVED	APPROVED BY

RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

TITLE	ROUTE LOCATION PLAN		SCALE
DATE	MARCH 2020	DRAWING NO.	3905/102/TD/ RLP-22
		REV.	





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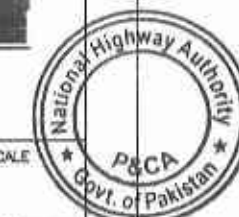
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04				DRAWN BY	RAJA SHAFAQ
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02				RECOMMENDED BY	
01				CHD./VER. BY	
REV.	DATE	DESCRIPTION	APPROVED	APPROVED BY	

RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

TITLE	ROUTE LOCATION PLAN		SCALE
DATE	MARCH 2020	DRAWING NO.	3905/102/TD/ RLP-23
		REV.	



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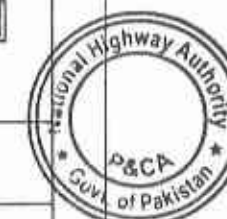


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RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

TITLE	ROUTE LOCATION PLAN		SCALE
DATE	MARCH 2020	DRAWING NO.	3905/102/TD/ RLP-24
		REV.	





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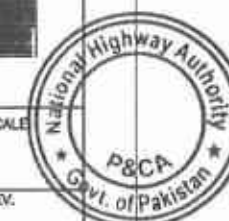


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04	JAWADULLAH	DRAWN BY	RAJA SHAFIQ
03	Project Manager	SUBMITTED BY	
02	M/S NESPAK	RECOMMENDED BY	
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REV.	DATE	DESCRIPTION	APPROVED

RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

TITLE	ROUTE LOCATION PLAN	SCALE
DATE	MARCH 2020	DRAWING NO.
		3905/102/TD/ RLP-25
		REV.





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REV.	DATE	DESCRIPTION	APPROVED	APPROVED BY

RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

TITLE	ROUTE LOCATION PLAN	SCALE
DATE	MARCH 2020	DRAWING NO.
		3905/102/TD/ RLP-26
		REV.





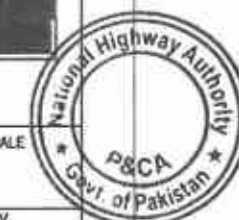
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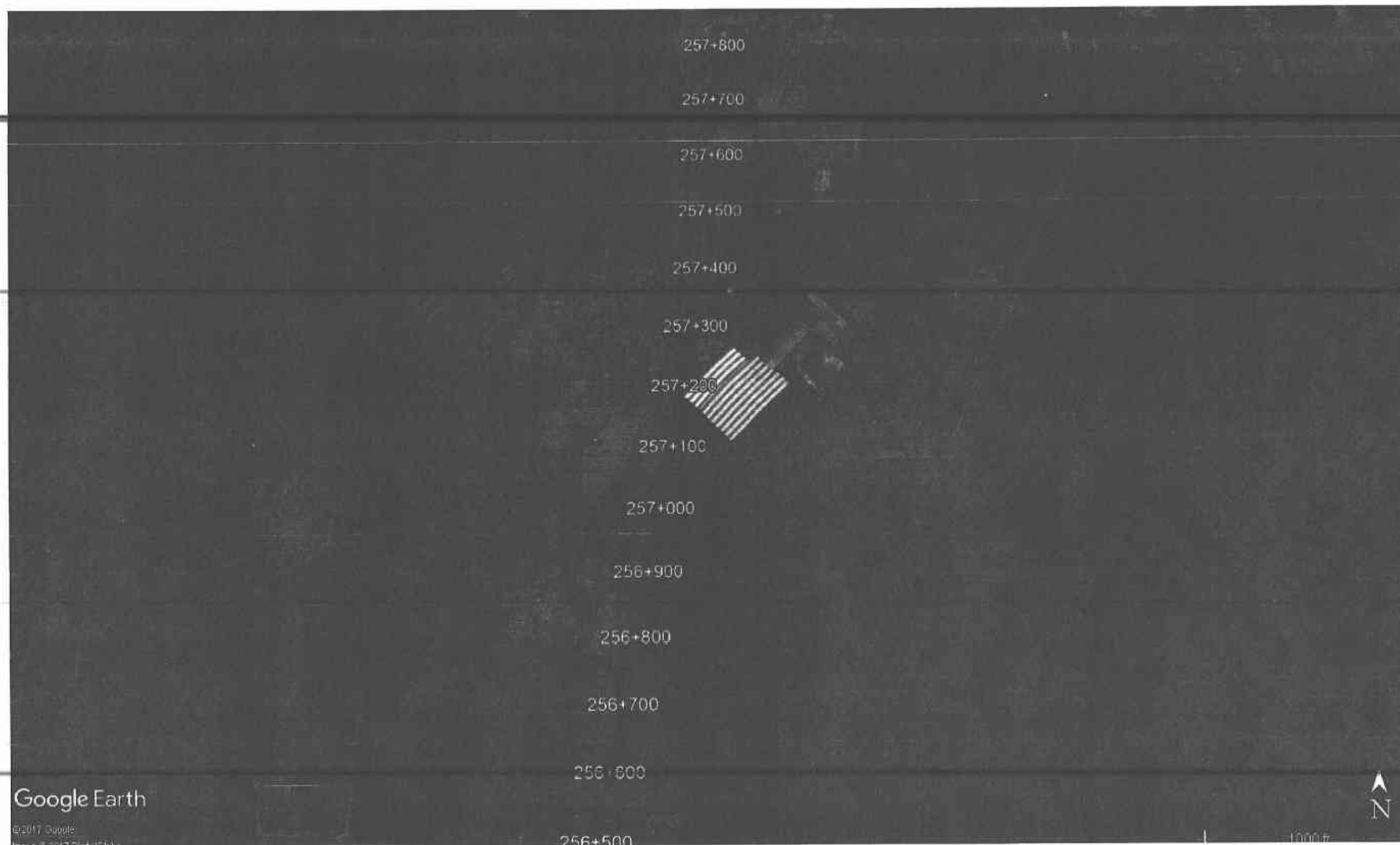
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03		Project Manager		SUBMITTED BY	
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RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)



TITLE	ROUTE LOCATION PLAN		SCALE
DATE	MARCH 2020	DRAWING NO.	3905/102/TD/ RLP-27
		REV.	

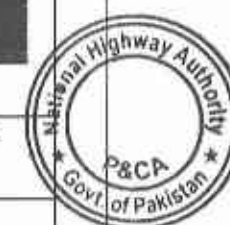


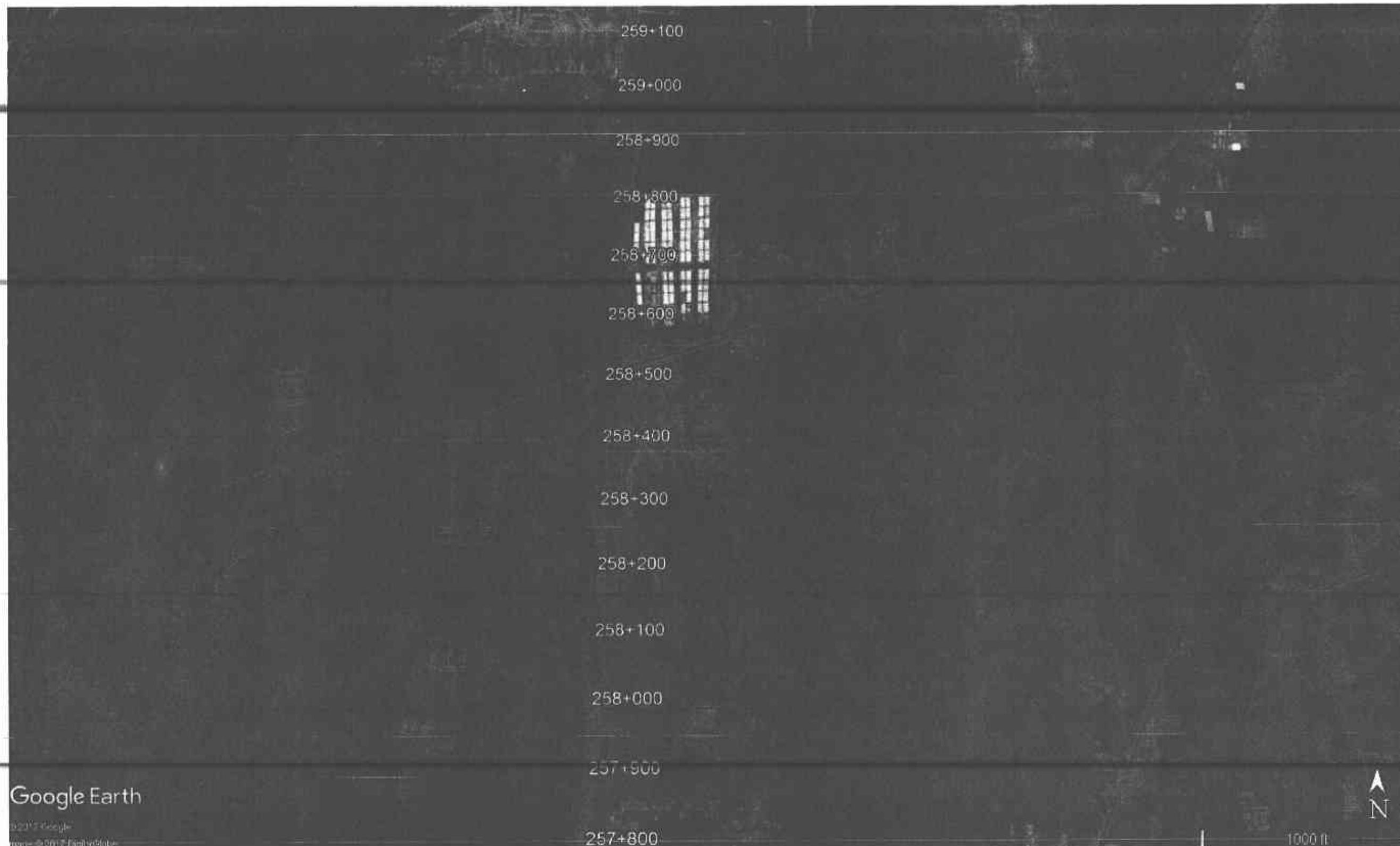


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		03				SUBMITTED BY			DATE MARCH 2020	DRAWING NO. 3905/102/TD/ RLP-28	REV.	
		02				RECOMMENDED BY						
		01				CHD./VER. BY						
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MINISTRY OF COMMUNICATIONS
NATIONAL HIGHWAY AUTHORITY

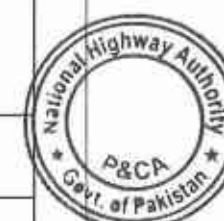


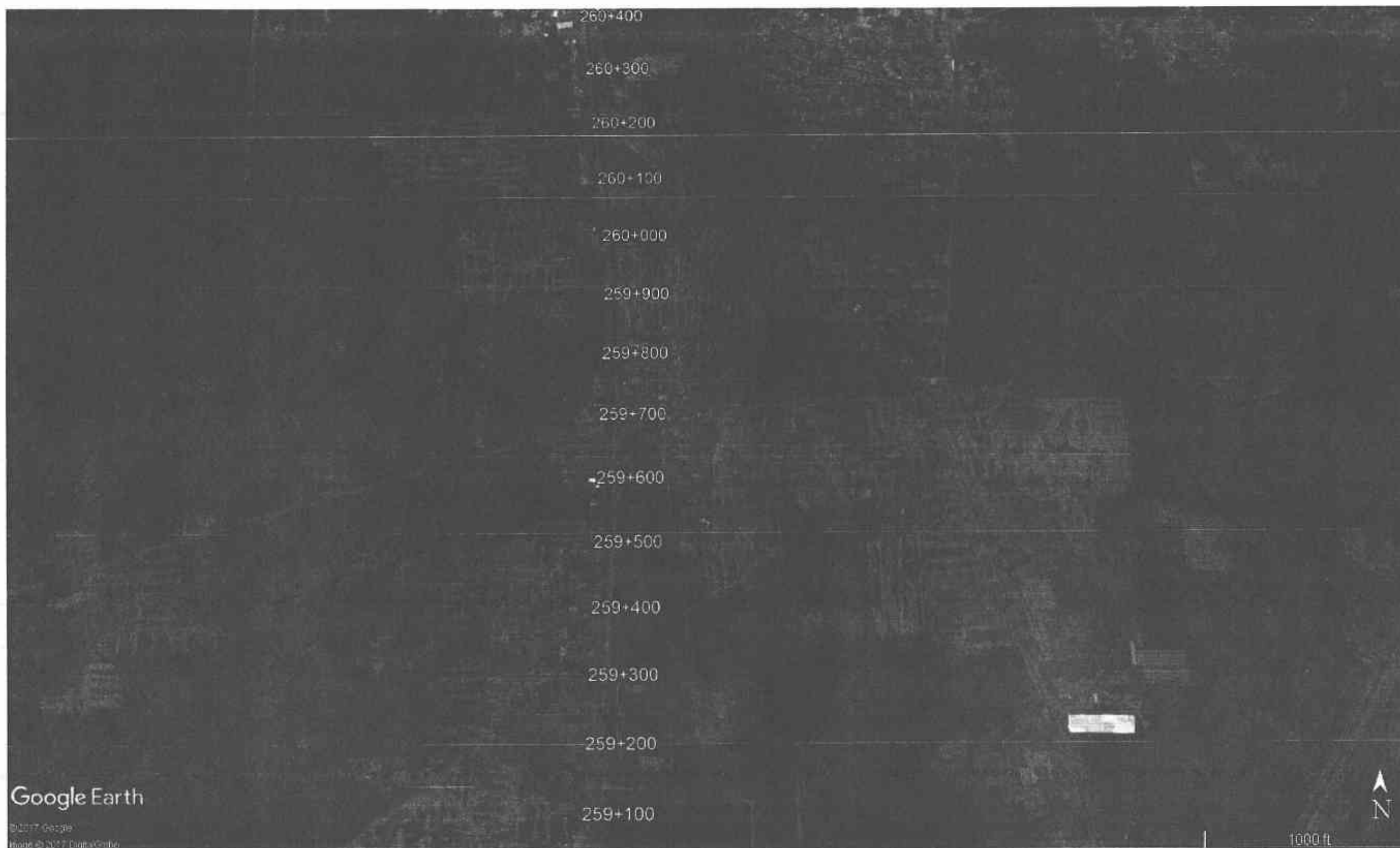
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REV.	DATE	DESCRIPTION	APPROVED	APPROVED BY	

RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

TITLE	ROUTE LOCATION PLAN		SCALE
DATE	MARCH 2020	DRAWING NO.	3905/102/TD/ RLP-29
		REV.	





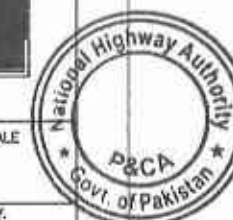
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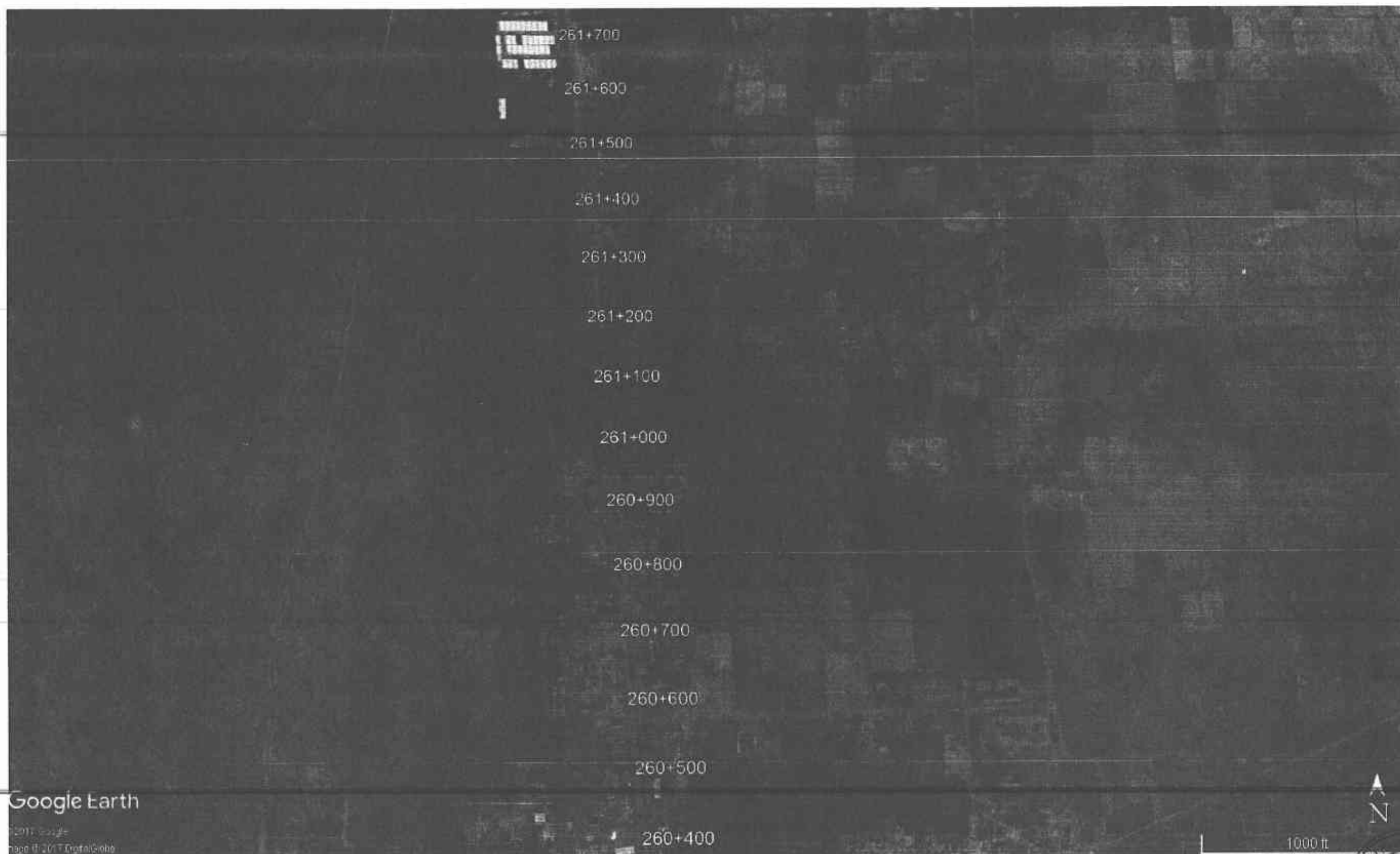
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RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

TITLE	ROUTE LOCATION PLAN		SCALE
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05	PROJECT MANAGER		SUBMITTED BY	
02	PROJECT MANAGER		RECOMMENDED BY	
01	M/S NEESPAK		CHD./VER. BY	
REV.	DATE	DESCRIPTION	APPROVED	APPROVED BY

RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

TITLE	ROUTE LOCATION PLAN		
DATE	MARCH 2020	DRAWING NO.	3905/102/TD/ RLP-31
REV.			





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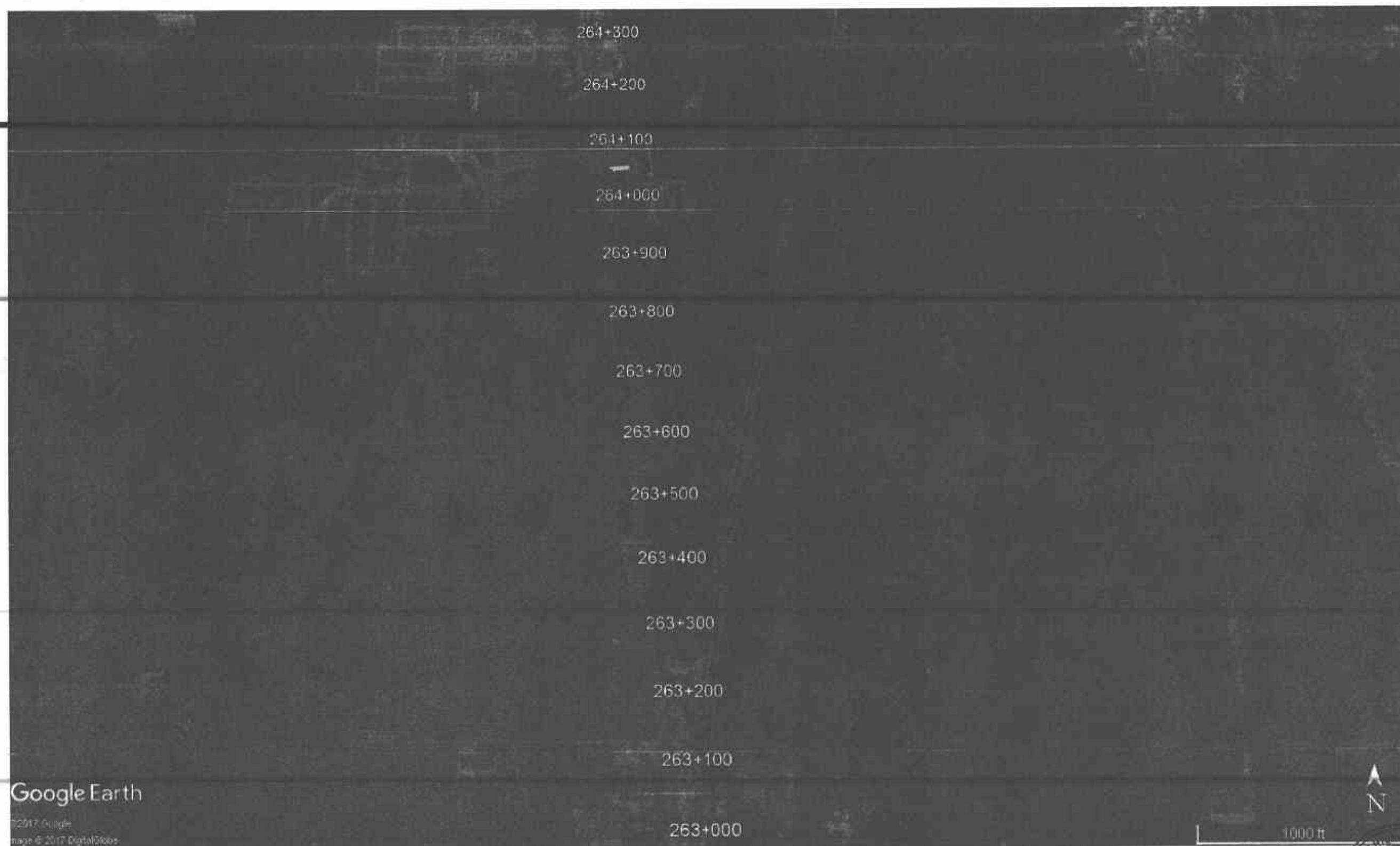
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01				CHD./VER. BY	
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RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

TITLE	ROUTE LOCATION PLAN		
DATE	MARCH 2020	DRAWING NO.	3905/102/TD/ RLP-32
REV.			





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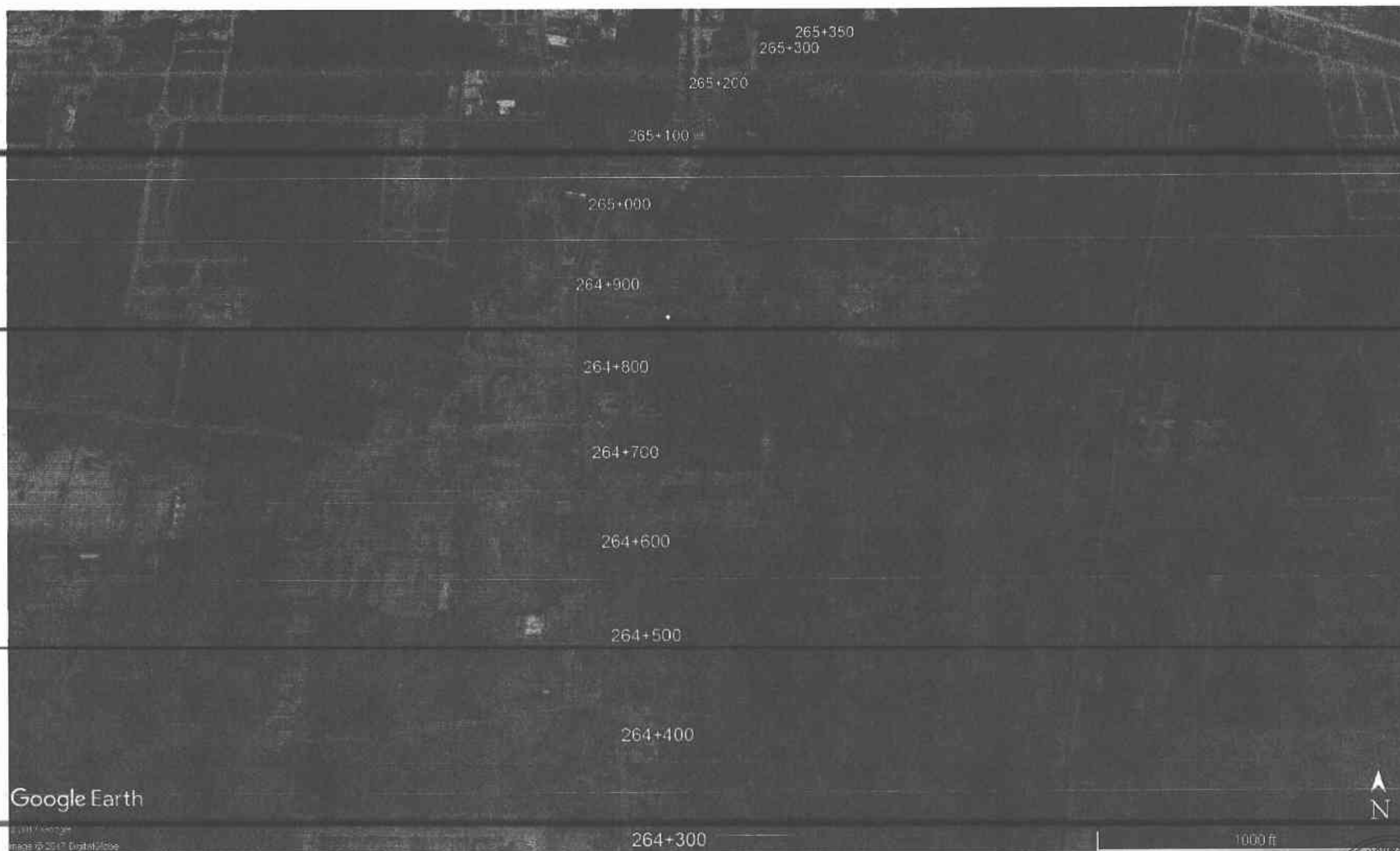
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01				CHD./VER. BY	
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RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

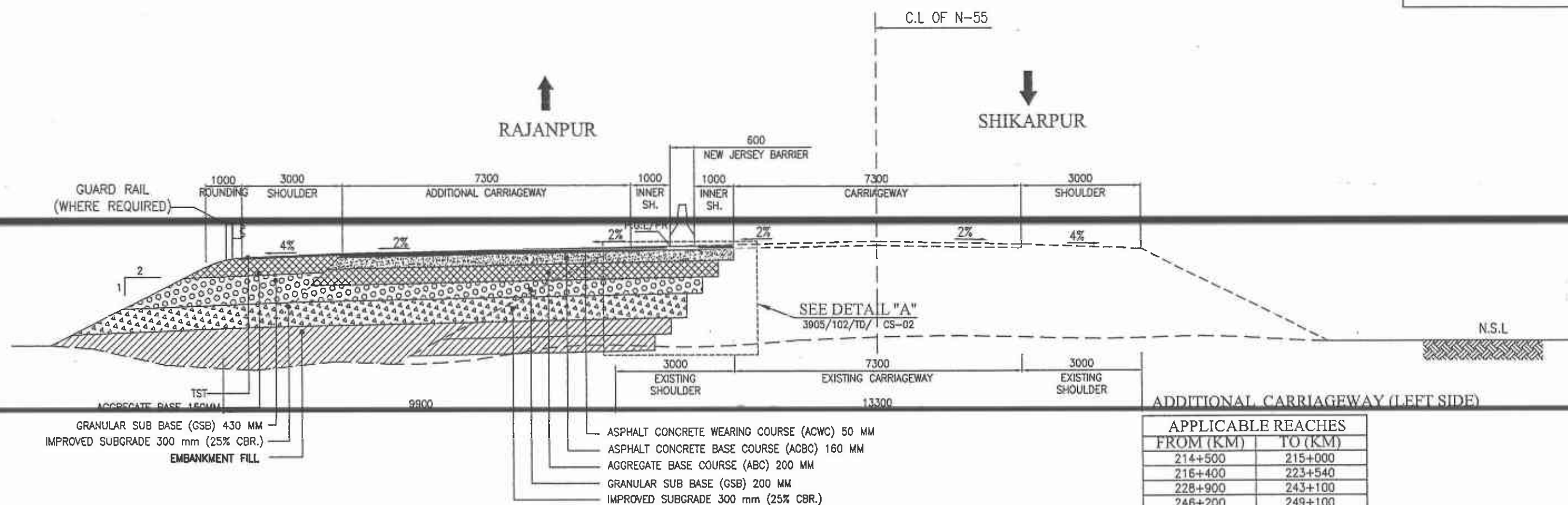
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DATE	MARCH 2020
DRAWING NO.	3905/102/TD/ RLP-33



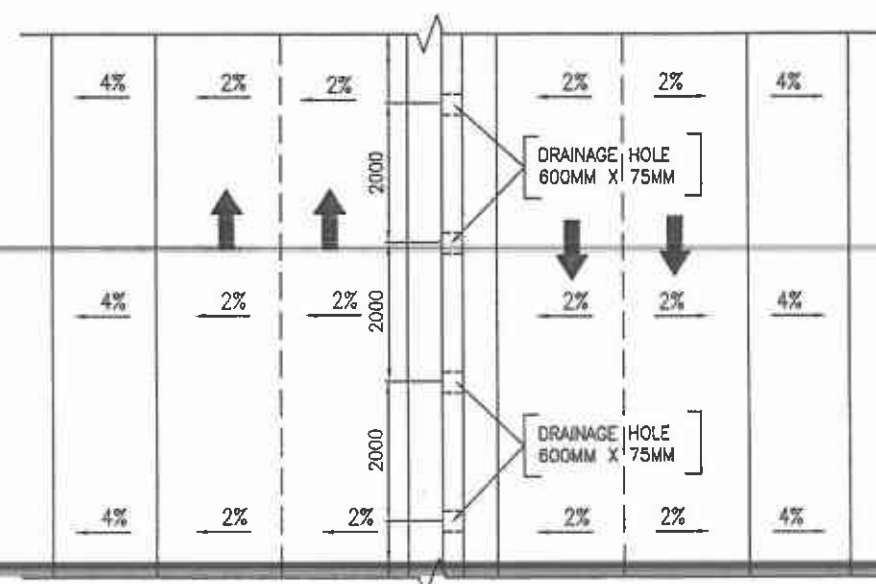


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		03				SUBMITTED BY			DATE MARCH 2020	DRAWING NO. 3905/102/TD/ RLP-34	REV.
		02				RECOMMENDED BY					
		01				CHKD./VER. BY					
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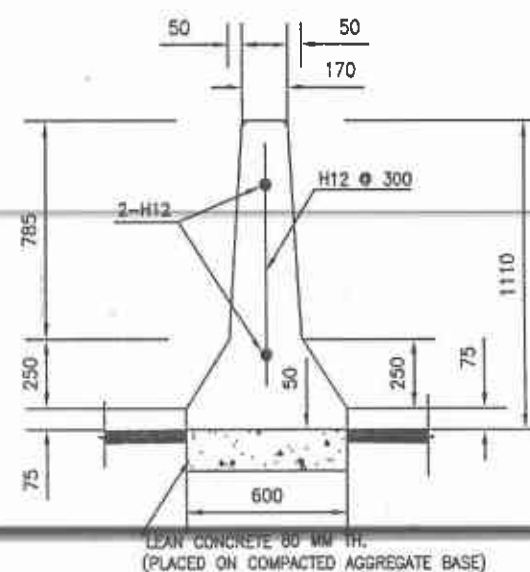




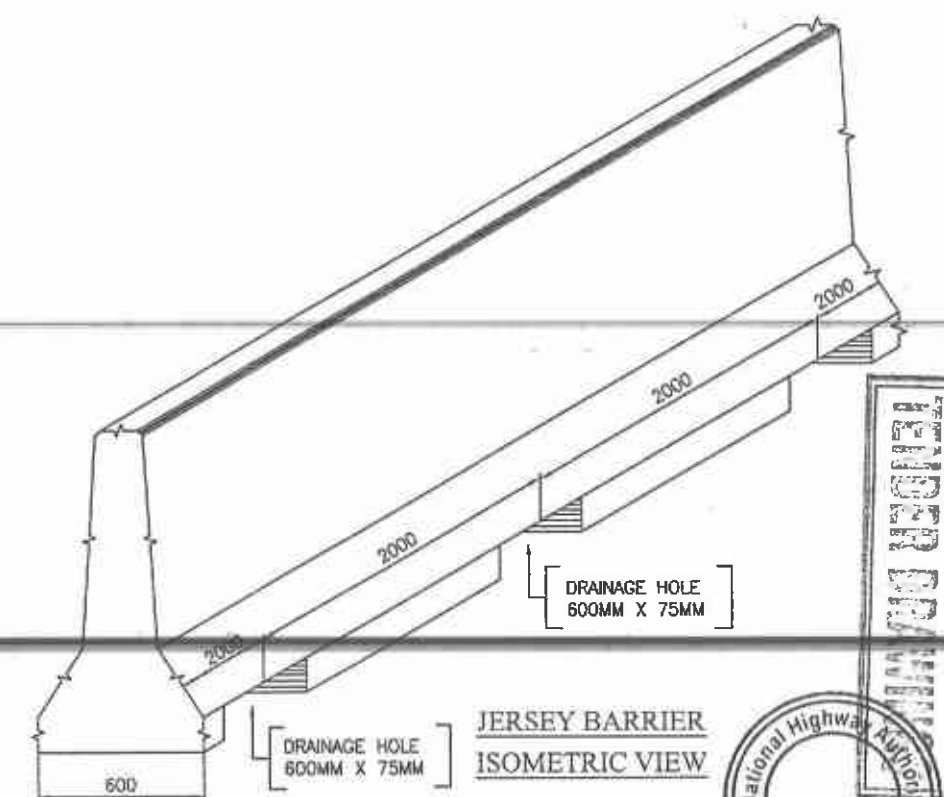
TYPICAL X-SECTION FOR ADDITIONAL CARRIAGEWAY ON LEFT SIDE



TYPICAL PLAN



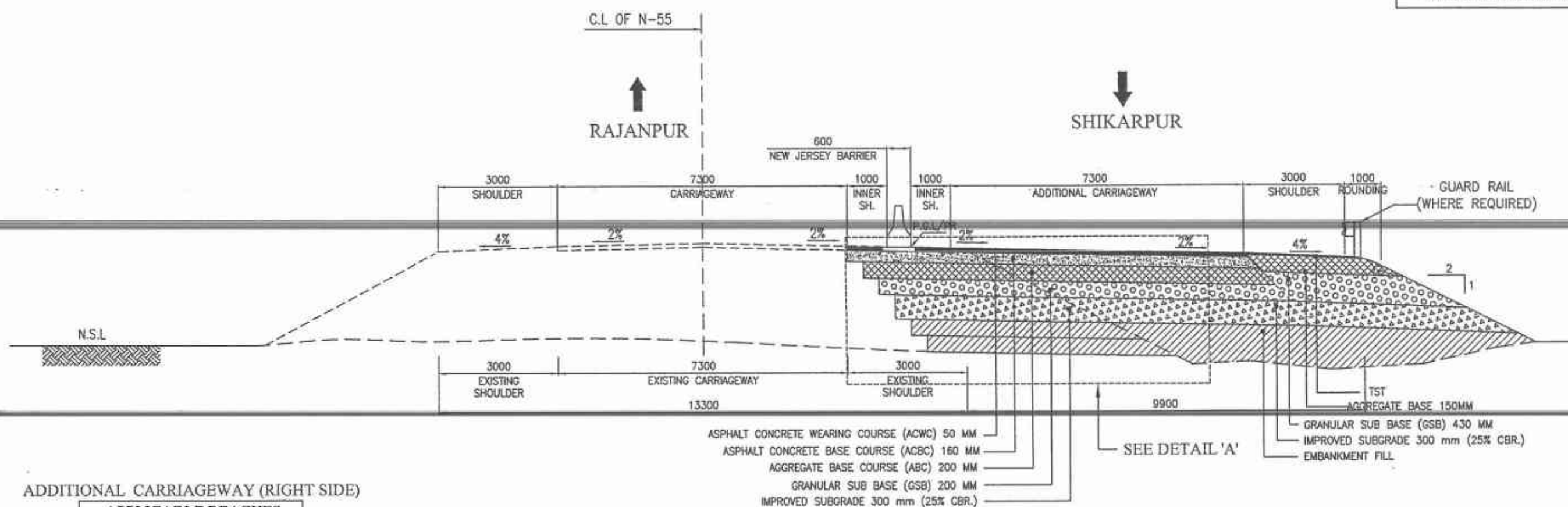
DETAIL OF JERSEY BARRIER



JERSEY BARRIER
ISOMETRIC VIEW

NOTE.

- 1-ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
2-FOR NOTES REFER DRAWING NO. CS-04.
3-GRANULAR PAVEMENT SHALL BE PAID 1H:1V AND ASPHALTIC LAYER SHALL BE PAID VERTICAL.

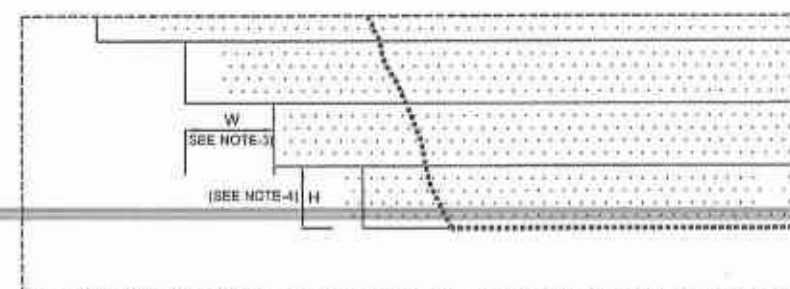


ADDITIONAL CARRIAGEWAY (RIGHT SIDE)

APPLICABLE REACHES	
FROM (KM)	TO (KM)
215+000	216+400
224+400	227+300
251+000	253+000

TYPICAL X-SECTION FOR ADDITIONAL CARRIAGEWAY ON RIGHT SIDE

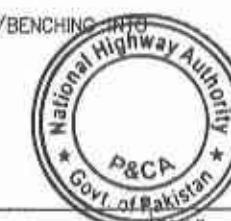
TENDER DRAWINGS



DETAIL "A"

NOTES :

- 1- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
- 2- FOR DETAILS REFER RELEVANT DRAWINGS.
- 3- MINIMUM DIMENSION " W " SHALL BE 300
- 4- " H " SHALL BE LIMITED TO A MAXIMUM OF 150.
- 5- BENCHES TO BE EXCAVATED ONE LEVEL AT A TIME AND THE COMPACTED FILL BROUGHT UP BEFORE THE NEXT LEVEL OF ENCHING IS EXCAVATED.
- 6- PROPER CONFINEMENT WITH A -4 MATERIAL SHALL BE CARRIED OUT IN CASE A-3 (SAND) OR NON- COHESIVE MATERIAL IS USED IN WIDENING PORTION.
- 7- NO SEPARATE PAYMENT SHALL BE MADE FOR CUTTING/BENCHING INTO EXISTING GROUND /SLOPE.
- 8- FOR OTHER NOTES REFER DRAWING # CS-04.



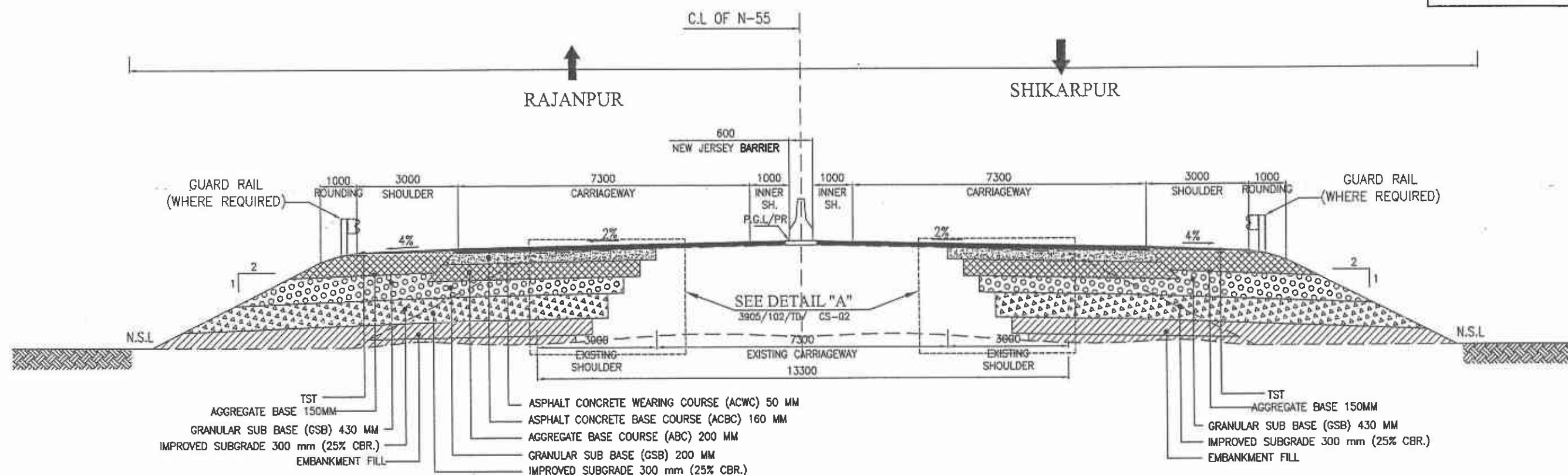
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NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD.

04	DATE	DESCRIPTION	APPROVED	APPROVED BY
03	DATE	DESCRIPTION	APPROVED	APPROVED BY
02	DATE	DESCRIPTION	APPROVED	APPROVED BY
01	DATE	DESCRIPTION	APPROVED	APPROVED BY

RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

TITLE	TYPICAL CROSS SECTION ADDITIONAL CARRIAGEWAY	SCALE
DATE	MARCH 2020	REV.
DRAWING NO.	3905/102/TD/	CS-02



TYPICAL X-SECTION WITH BOTH SIDE WIDENING

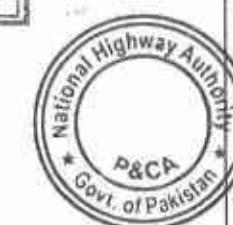
BOTH SIDE WIDENING



APPLICABLE REACHES	
FROM (KM)	TO (KM)
213+500	214+500
223+540	224+400
227+300	228+900
243+100	246+200
249+100	251+000
253+000	257+460
259+960	265+390

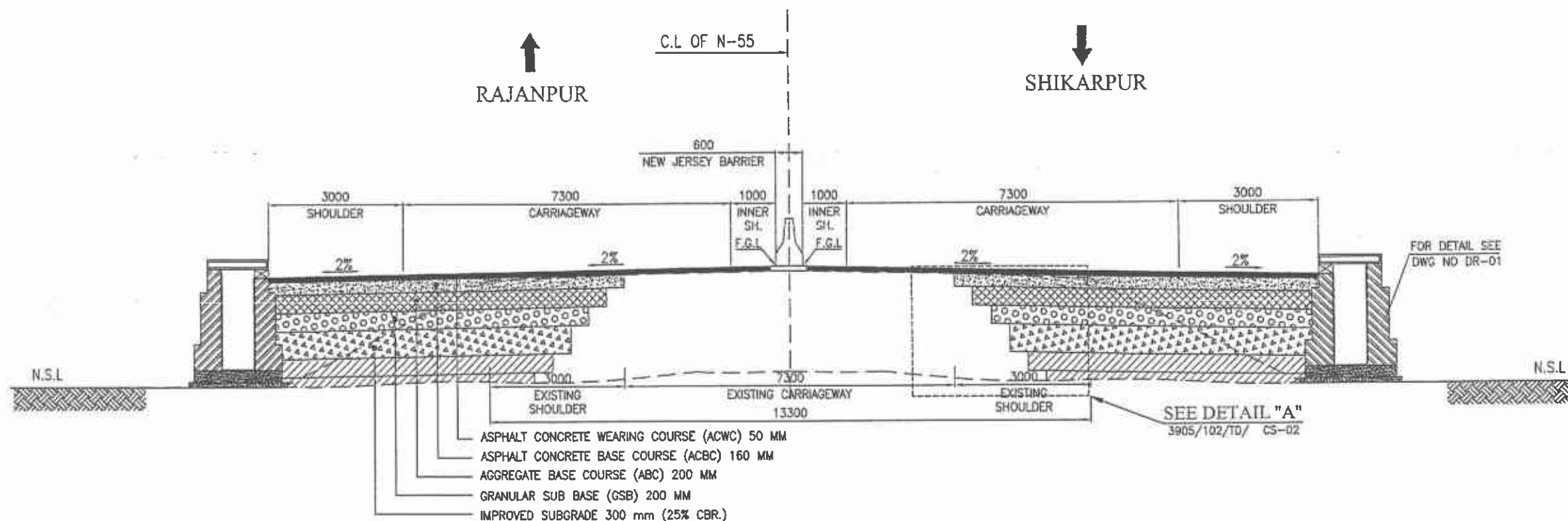
NOTE.

- 1-ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
2-FOR NOTES REFER DRAWING NO. CS-04.

TENDER DRAWINGS



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		03			SUBMITTED BY			TYPICAL CROSS SECTION		
		02			RECOMMENDED BY					
		01			CHD./VER. BY					
		REV.	DATE	DESCRIPTION	APPROVED	APPROVED BY			DATE	
							MARCH 2020	3905/102/TD/	CS-03	



TYPICAL X-SECTION WITH BOTH SIDE WIDENING IN URBAN AREA

TENDER DRAWINGS

STEPS FOR EXISTING ROAD REHABILITATION:

1. REMOVE ASPHALTIC WEARING COURSE AND INSPECT THE UNDERLYING ASPHALTIC BASE COURSE AS PER SPECIFICATIONS, IF FOUND SUITABLE, LAY 80MM ASPHALTIC BASE COURSE AND THEN LAY 50MM ASPHALTIC WEARING COURSE.
2. IF AFTER REMOVING ASPHALTIC WEARING COURSE, UNDERLYING ASPHALTIC BASE COURSE DO NOT QUALIFY THE SPECIFICATIONS, REMOVE ASPHALTIC BASE COURSE COMPLETELY AND INSPECT UNDERLYING AGGREGATE BASE COURSE AND CHECK SUITABILITY AS PER SPECIFICATIONS. IF UNDERLYING AGGREGATE BASE COURSE MATERIAL QUALIFIES THE SPECIFICATIONS, THEN RE-COMPACT AT 100% MDD AND LAY SUBSEQUENT ASPHALTIC LAYERS.
3. IF UNDERLYING AGGREGATE BASE COURSE IS NOT QUALIFYING THE SPECIFICATIONS, THEN ADD GOOD QUALITY BASE MATERIAL (15cm) FOR QUALIFICATION AND RE-COMPACT AT 100% MDD AND LAY SUBSEQUENT ASPHALTIC LAYERS.

NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
2. IMPROVED SUBGRADE SHALL HAVE MINIMUM CBR OF 25%. IF A BARROW MATERIAL OF 25% CBR IS NOT AVAILABLE IN THE PROJECT AREA THE APPROVED MATERIAL SHALL BE BLENDED MECHANICALLY IN A PROPER PROPORTION WITH PRIOR APPROVAL OF THE ENGINEER.
3. EMBANKMENT FILL SHALL BE MEASURED AND PAID AS PER 2H:1V SLOPE, HOWEVER PAVEMENT STRUCTURE SHALL BE MEASURED AND PAID AS PER 1H:1V SLOPE ON OUTER SIDE AND SHALL BE MEASURED AND PAID VERTICAL ON INNER SIDE (TOWARDS EXISTING CARRIAGEWAY).
4. ASPHALTIC LAYERS SHALL BE PAID VERTICAL.
5. EMBANKMENT FILL SHALL BE COMPACTED ACCORDING TO THE COMPACTION ZONE.
6. THE LOCATION OF WATER PONDING/WATER LOGGED AREAS SHALL BE IDENTIFIED PRIOR TO THE CONSTRUCTION WITH APPROVAL OF THE ENGINEER.
7. IN CASE OF WATER LOGGED AREA, GRANULAR PLATFORM SHALL BE PROVIDED UPTO THE DEPTH OF 450MM (MAX) OR AS DIRECTED BY THE ENGINEER. HOWEVER WATER IN PONDING AREAS, ROCK FILL MATERIAL SHALL BE PROVIDED UPTO THE HEIGHT OF WATER LEVEL + 600MM.
8. DRAIN SHALL BE PROVIDED IN URBAN PORTION, AND TYPE OF DRAIN SHALL BE DECIDED BY ENGINEER REPRESENTATIVE KEEPING IN VIEW SITE CONDITIONS.
9. FOR BENCHING DETAIL, REFER TO DRW 3905/102/TDCS002.





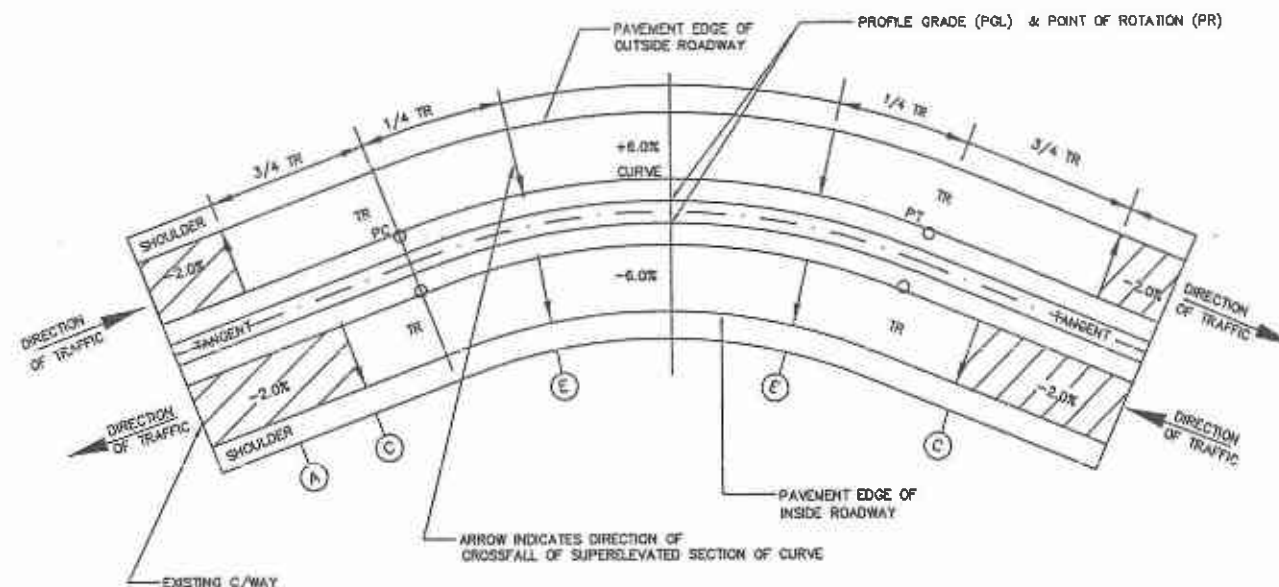
 <div>GOVERNMENT OF PAKISTAN MINISTRY OF COMMUNICATIONS NATIONAL HIGHWAY AUTHORITY</div>	 <div>NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD.</div>	04	TAWABUL HANE	DRAWN BY	RAJA SHAFIQ	RATODERO ~ RAJANPUR ROAD SECTION-V (ROJHAN TO RAJANPUR)	TITLE		SCALE	
		03	Project Manager	SUBMITTED BY			TYPICAL CROSS SECTION			
		02	M/S NESPAK	RECOMMENDED BY						
		01		CHD./VER. BY						
		REV.	DATE	DESCRIPTION	APPROVED	APPROVED BY	DATE	DRAWING NO.	REV.	
							MARCH 2020	3905/102/TD/	CS-04	

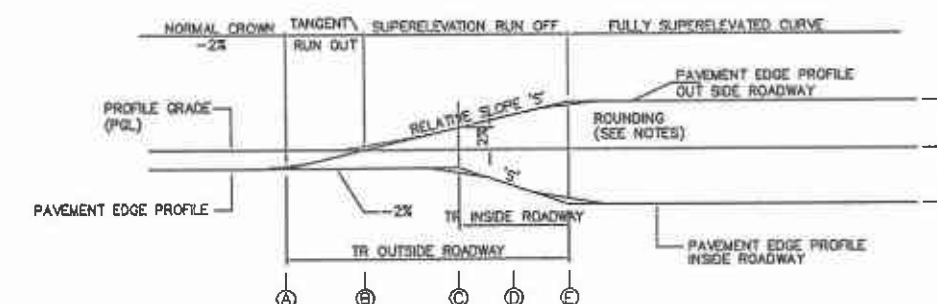
TABLE-I
RELATIVE SLOPE FOR SUPERELEVATED EDGE (S%)

DESIGN SPEED Km / Hr	2 LANE ROAD	1 LANE RAMP	2 LANE RAMP
50	0.67	0.80	1.00
80	0.50		
100 *	0.45		
120	0.40		

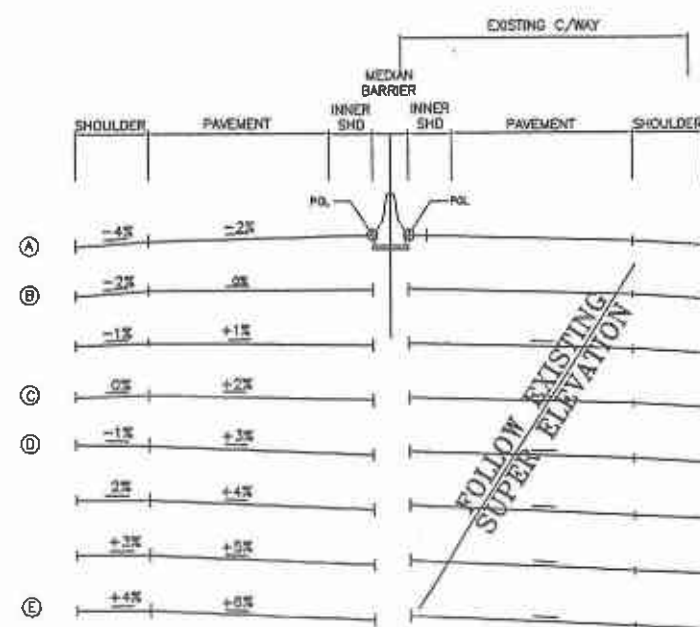
* VALUE TO BE ADOPTED FOR THIS PROJECT.



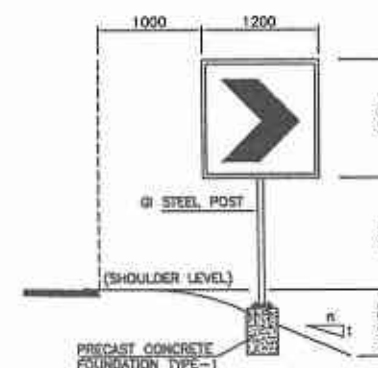
PLAN OF TYPICAL
SUPERELEVATION TRANSITION



PROFILE OF TYPICAL EDGE
SUPERELEVATION TRANSITIONS



SECTIONS OF TYPICAL
DISTRIBUTION OF SUPERELEVATION





SHARP DEVIATION SIGN
(ON SHARP CURVES)

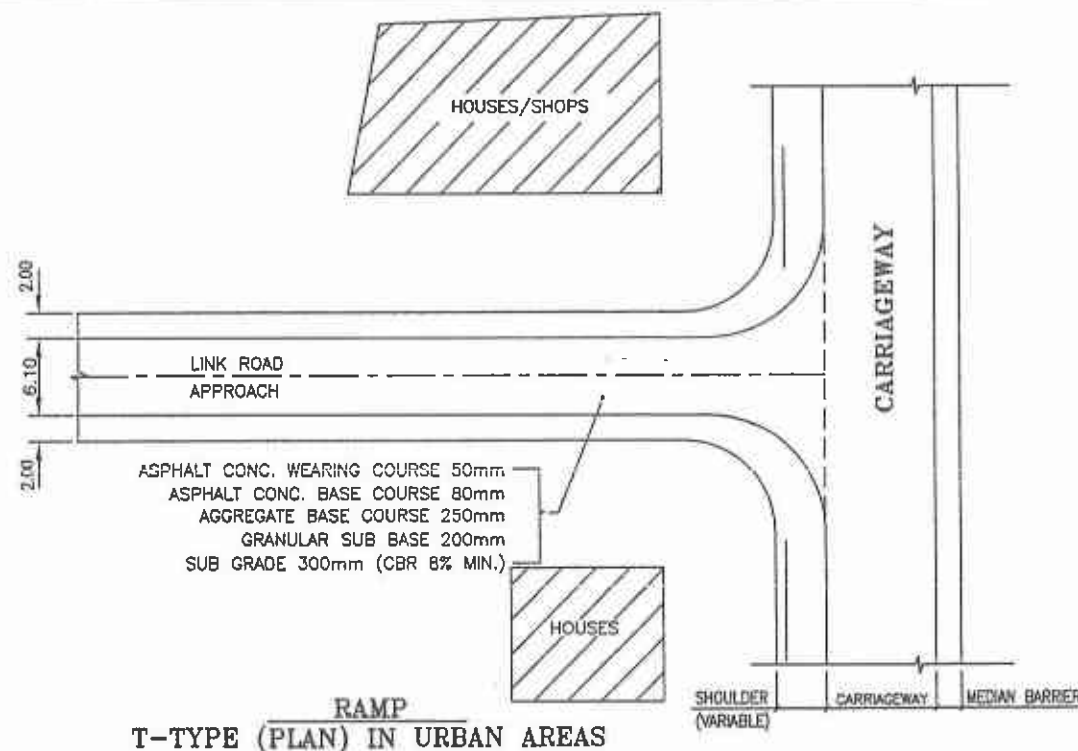
NOTES :-

- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.
- ALL SUPERELEVATION RATES ARE EXPRESSED IN UNITS PER HUNDRED (%).
- PROFILE GRADE LINE (PGL) AND POINT OF ROTATION (PR) SHALL BE AS SHOWN IN THE TYPICAL CROSS SECTION.
- FOLLOWING SIGN CONVENTION FOR SUPERELEVATION RATE ARE APPLICABLE
(-) WHEN LEFT EDGE OF PAVEMENT OR SHOULDER, IN DIRECTION OF TRAFFIC IS LOWER THAN RIGHT EDGE.
(+) WHEN LEFT EDGE OF PAVEMENT OR SHOULDER, IN DIRECTION OF TRAFFIC, IS HIGHER THAN RIGHT EDGE.
- EDGE PROFILES OF SUPERELEVATED PAVEMENT AND SHOULDERS SHALL BE FREE FROM IRREGULARITIES, ROUNDING AT POINTS A,C & E SHALL BE ACHIEVED USING A 20 METER MINIMUM VERTICAL CURVE.
- THE FORMULAE USED FOR CALCULATION OF INNER & OUTER TRs ARE AS UNDER:-
(i). LENGTH OF TR = $\frac{\text{REQUIRED S.E.} \times \text{CROSS SLOPE}}{\text{S FACTOR}} \times \text{PAVEMENT WIDTH TO BE ROTATED}$
(ii). 'S' FACTOR IS TAKEN FROM TABLE-I. THE LENGTH OF TRs ARE INDICATED ON PLAN & PROFILE SHEETS, WHICH MAY BE ADJUSTED AS PER SITE CONDITIONS AND/OR AS APPROVED BY THE ENGINEER'S REPRESENTATIVE.
- THE RATE OF SUPERELEVATION (S.E) IS RESTRICTED TO A MAXIMUM OF 6%.



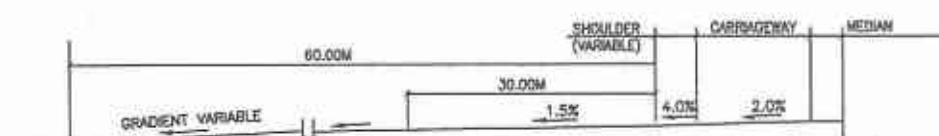
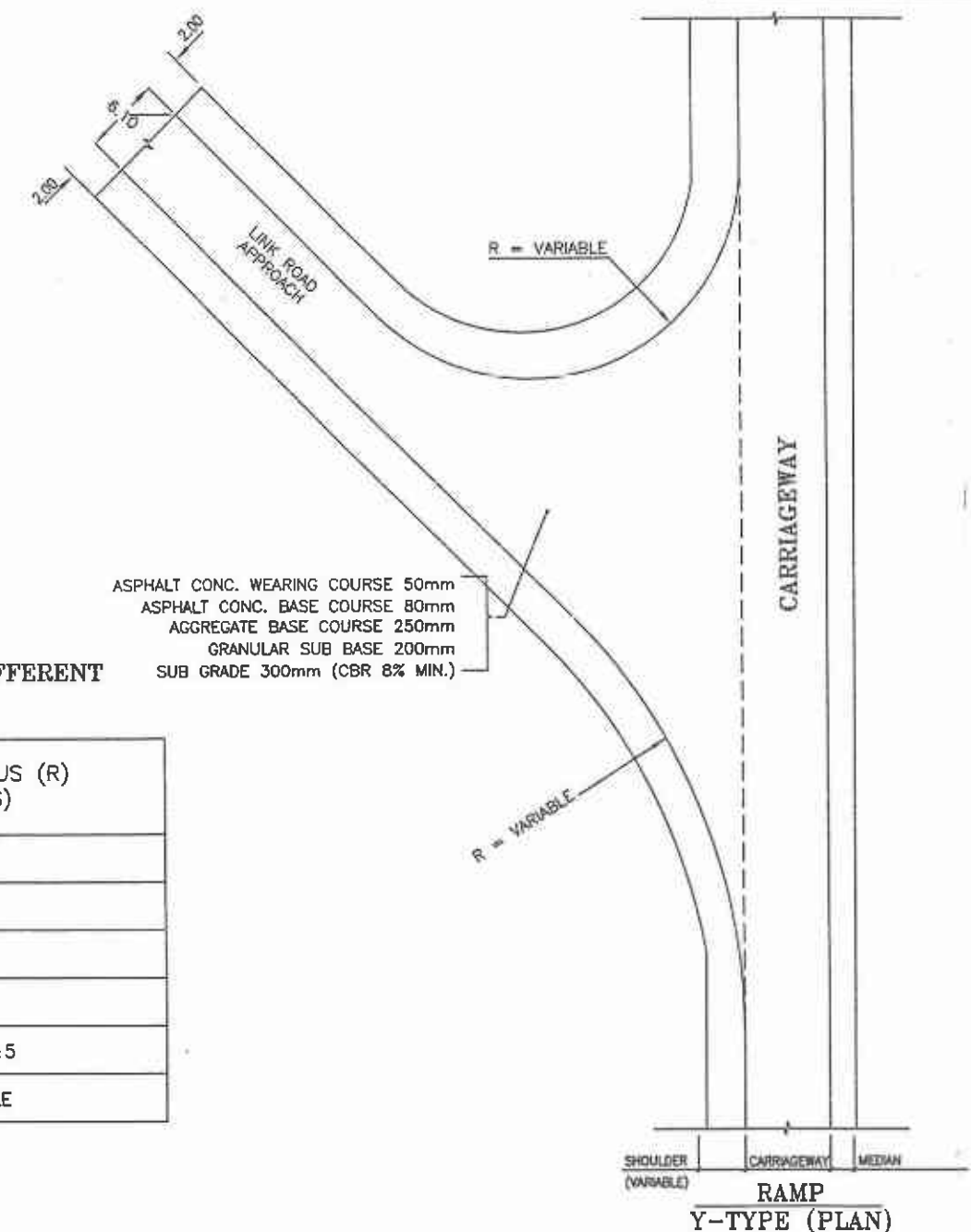
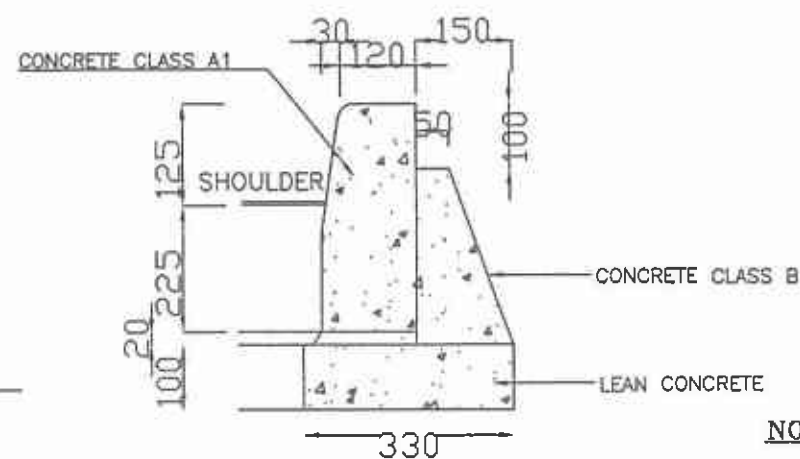
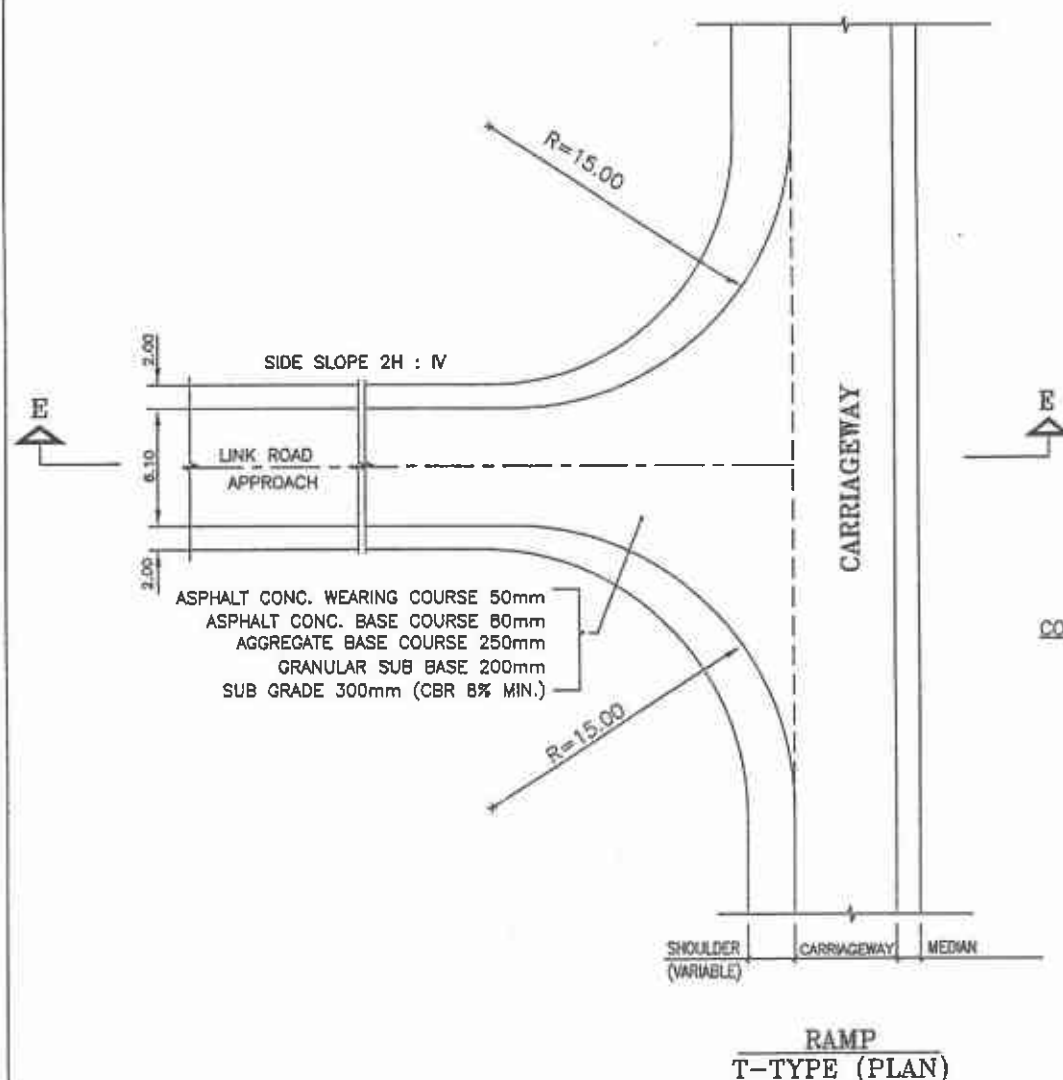
TENDER DRAWINGS

	GOVERNMENT OF PAKISTAN MINISTRY OF COMMUNICATIONS NATIONAL HIGHWAY AUTHORITY		NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD.	04			DRAWN BY	RAJA SHAFIQ	RATODERO ~ RAJANPUR ROAD SECTION-V (ROJHAN TO RAJANPUR)	TITLE		SCALE
				03			SUBMITTED BY			TYPICAL SUPERELEVATION DETAILS		
				02			RECOMMENDED BY					
				01			CHD./VER. BY					
				REV.	DATE	DESCRIPTION	APPROVED	APPROVED BY				
							DATE		DRAWING NO.	REV.		
							MARCH 2020		3905/102/TD/ TS-01			



RECOMMENDED CURVE RADII FOR DIFFERENT
ANGLES OF TURN

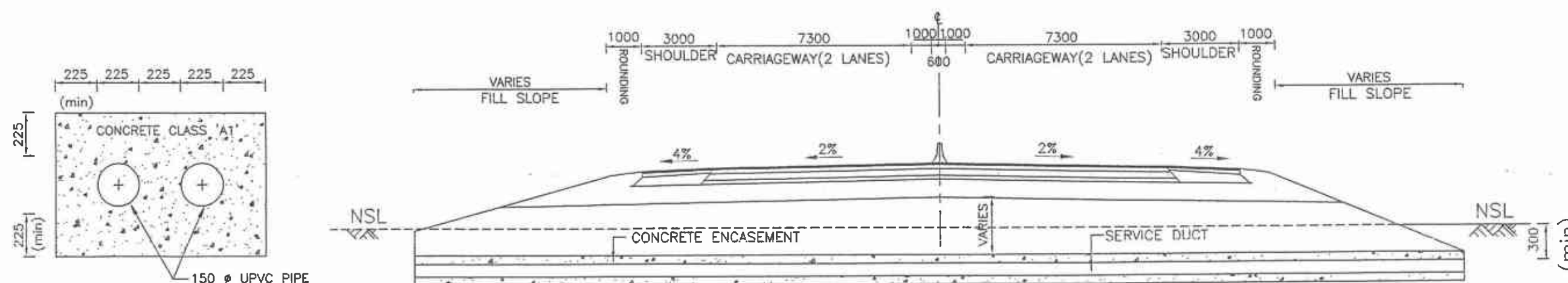
ANGLE OF TURN (DEGREES)	CURVE RADIUS (R) (METRES)
30	30
45	23
60	18
75	16
90	12 TO 15
>90	VARIABLE



NOTES:

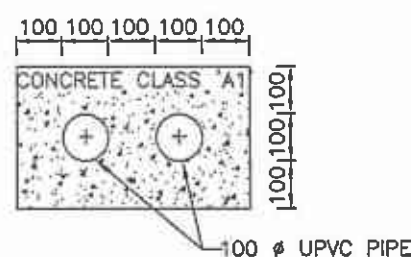
- 1- ALL DIMENSIONS ARE IN MILLIMETERS OTHERWISE MENTIONED.
- 2- RAMPS ARE TO BE MATCHED WITH DESIGN FINISHED ROAD LEVEL OF PROJECT ROAD.

<p>GOVERNMENT OF PAKISTAN MINISTRY OF COMMUNICATIONS NATIONAL HIGHWAY AUTHORITY</p>	<p>NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD.</p>	04			DRAWN BY	RAJA SHAFIQ	<p>RATODERO ~ RAJANPUR ROAD SECTION-V (ROJHAN TO RAJANPUR)</p>	<p>TITLE TYPICAL DETAILS OF MINOR JUNCTION</p>	<p>SCALE</p>
		03			SUBMITTED BY				
		02			RECOMMENDED BY				
		01			CHD./VER. BY				
REV.	DATE		DESCRIPTION	APPROVED	APPROVED BY		<p>DATE MARCH 2020</p>	<p>DRAWING NO. 3905/102/TD/</p>	<p>REV. MJ-01</p>

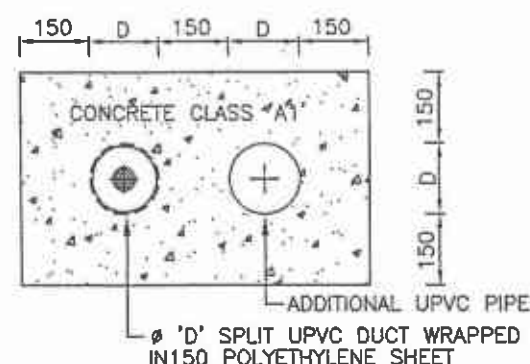


TYPICAL CROSS SECTION OF SERVICE DUCTS ACROSS

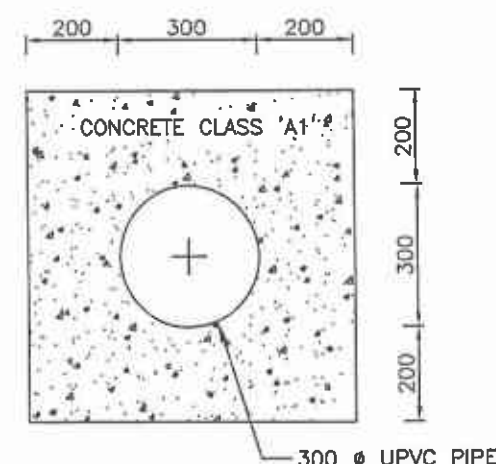
(FUTURE DUCTS FOR ELECTRICAL CABLES)



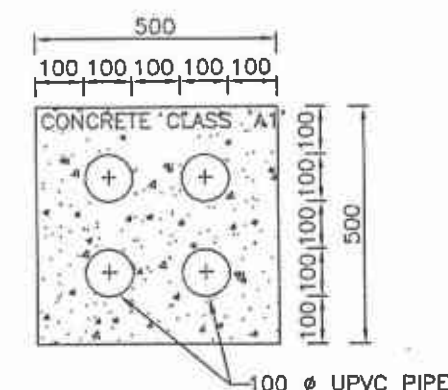
(FUTURE DUCTS FOR TELEPHONE CABLES TWO WAY)



DUCT FOR PROTECTION OF EXISTING SERVICES



(FUTURE DUCTS FOR WATER LINES)



(FUTURE DUCTS FOR TELEPHONE CABLES 4 WAY)

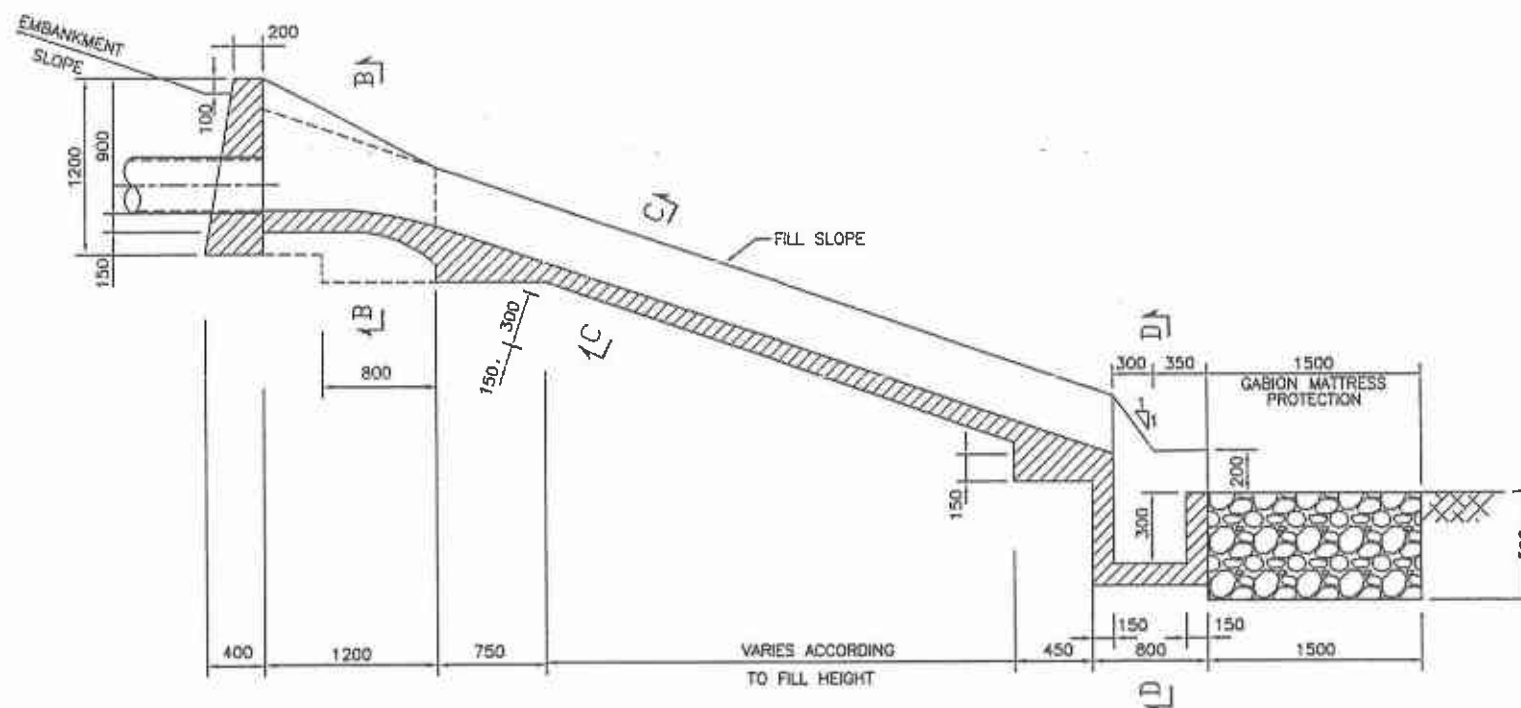
TENDER DRAWINGS



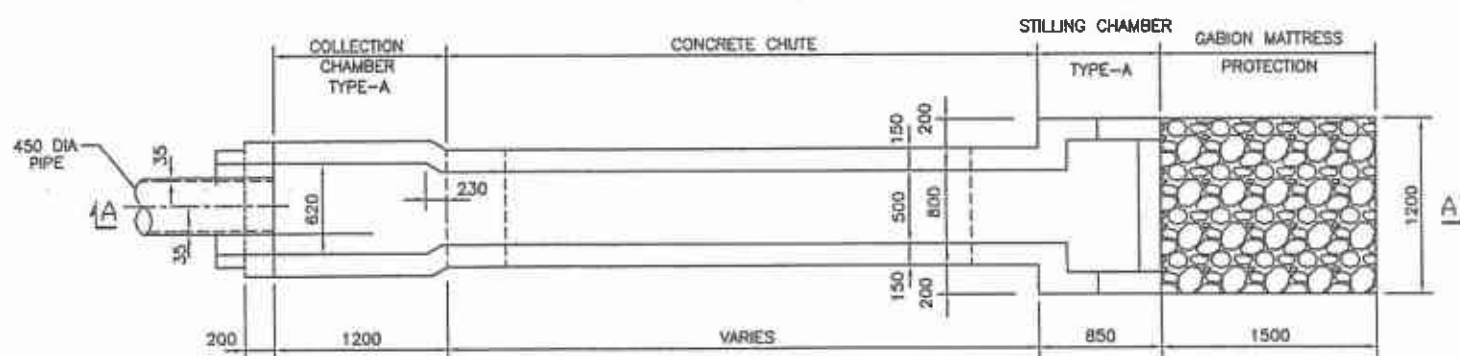
NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS NOTED OTHERWISE.
2. SERVICE DUCTS WILL BE PROVIDED AFTER ONE KILOMETER INTERVAL OR REQUIREMENT. SPACING & POSITION OF SERVICE DUCTS SHALL BE COORDINATED BY THE CONTRACTOR WITH THE CONCERNED AUTHORITY DURING CONSTRUCTION WITH APPROVAL OF THE ENGINEER'S REPRESENTATIVE.
3. DIAMETER (D) OF SPLIT DUCT FOR PROTECTION OF EXISTING SERVICES AND THAT OF ADDITIONAL DUCT SHALL BE AS DIRECTED BY THE ENGINEER'S REPRESENTATIVE.
4. FLEXIBLE JOINTS SHALL BE PROVIDED AT MAXIMUM OF 5000 IN CONCRETE SURROUNDS.

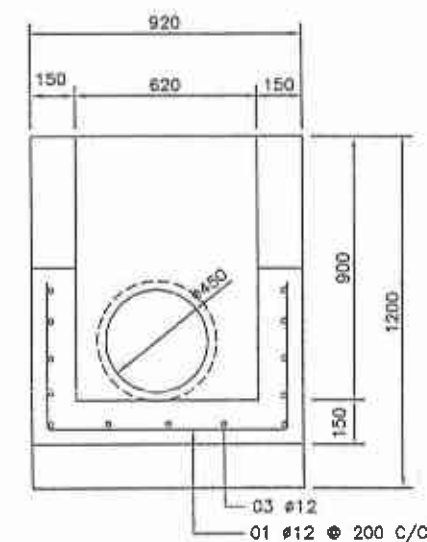
<p>GOVERNMENT OF PAKISTAN MINISTRY OF COMMUNICATIONS NATIONAL HIGHWAY AUTHORITY</p>	<p>NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD.</p>	<p>04 03 02 01 REV. DATE DESCRIPTION APPROVED</p>	<p>JAWAD HAO Project Manager M/S NESPAK</p>	<p>DRAWN BY RAJA SHAFIQ SUBMITTED BY RECOMMENDED BY CHD./VER. BY APPROVED BY</p>	<p>RATODERO ~ RAJANPUR ROAD SECTION-V (ROJHAN TO RAJANPUR)</p>	<p>TITLE DETAILS OF SERVICE DUCTS DATE MARCH 2020 DRAWING NO. 3905/102/TD/ REV. D-01</p>	<p>SCALE</p>
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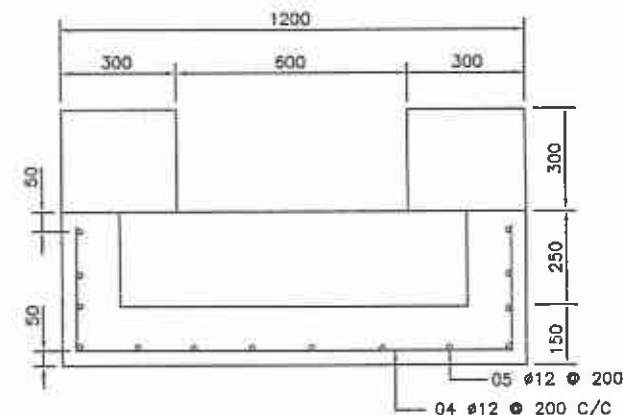
SECTION A-A



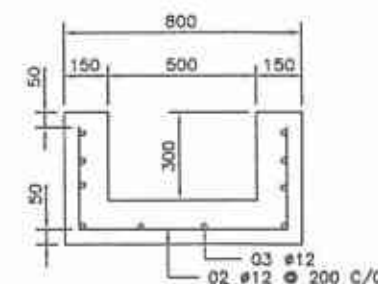
PLAN
CHUTE TYPE (A)



SECTION B-B



SECTION D-D



SECTION C-C



TENDER DRAWING

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. CONCRETE CHUTES SHALL BE PROVIDED AT AN INTERVAL OF 50M WHERE FILL HEIGHT IS MORE THAN 3M OR AS DIRECTED BY THE ENGINEER'S REPRESENTATIVE.
3. CONCRETE FOR CHUTES COLLECTION & STILLING CHAMBERS SHALL BE CLASS "A1".
4. RE-BAR SHALL BE GRADE 60 REINFORCEMENT STEEL.
5. CONCRETE CHUTE TYPE (A) SHALL BE USED AT OUTLETS OF MEDIAN OPENING AND AT OTHER LOCATIONS OR AS DIRECTED BY THE ENGINEER'S REPRESENTATIVE.
6. COLLECTION CHAMBER TYPE-C SHALL BE USED IN LIEU OF TYPE-B, WHEREVER LONGITUDINAL SLOPE OF ROAD EXCEEDS 1.0% AND/OR AT OTHER LOCATIONS APPROVED BY THE ENGINEER'S REPRESENTATIVE.

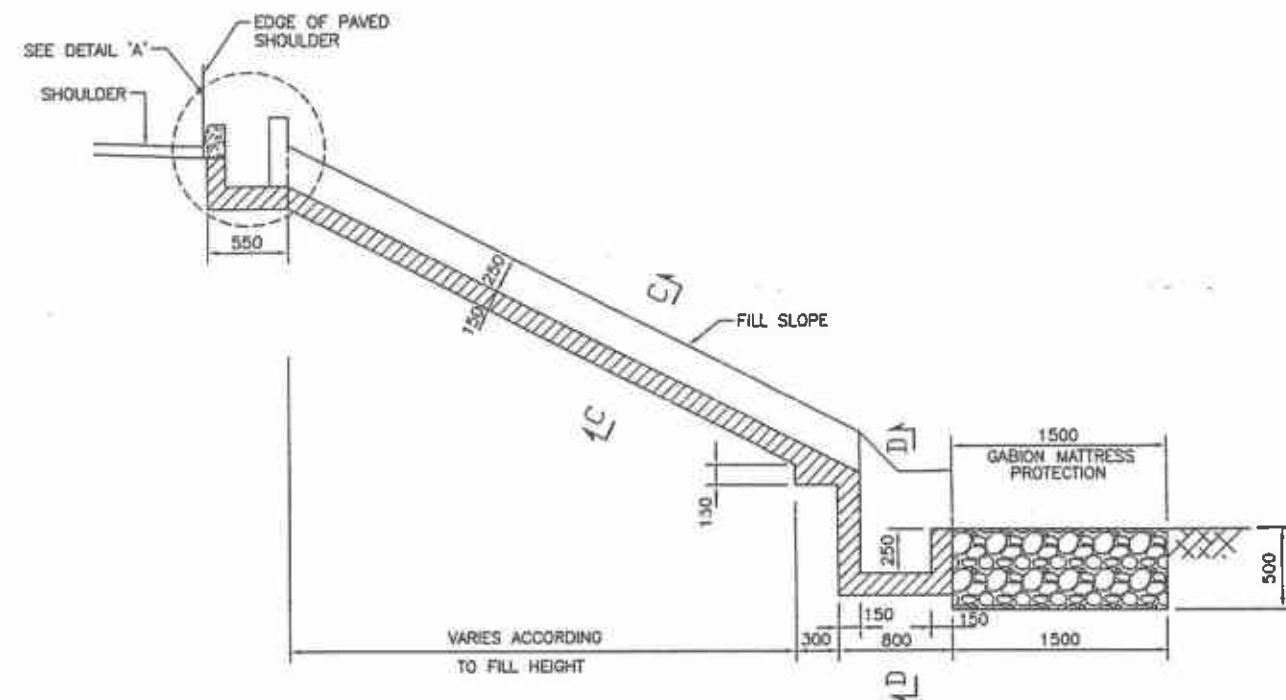
GOVERNMENT OF PAKISTAN
MINISTRY OF COMMUNICATIONS
NATIONAL HIGHWAY AUTHORITY

NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD.

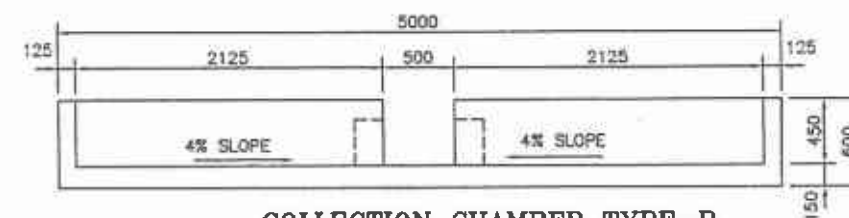
04				DRAWN BY	RAJA SHAFIQ
03				SUBMITTED BY	
02				RECOMMENDED BY	
01				CHD./VER. BY	
REV.	DATE	DESCRIPTION	APPROVED	APPROVED BY	

RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

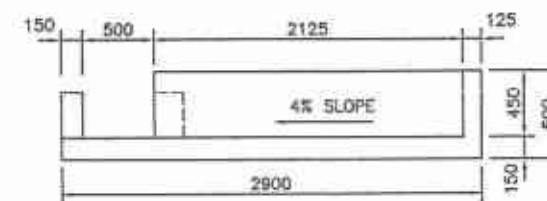
TITLE	CONCRETE CHUTE (1)	SCALE
DATE	MARCH 2020	REV.
DRAWING NO.	3905/102/TD/	D-02



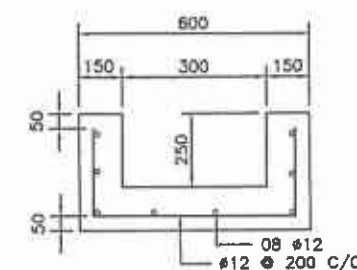
SECTION A-A



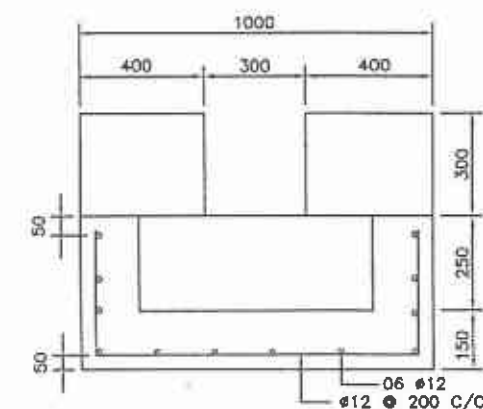
COLLECTION CHAMBER TYPE-B



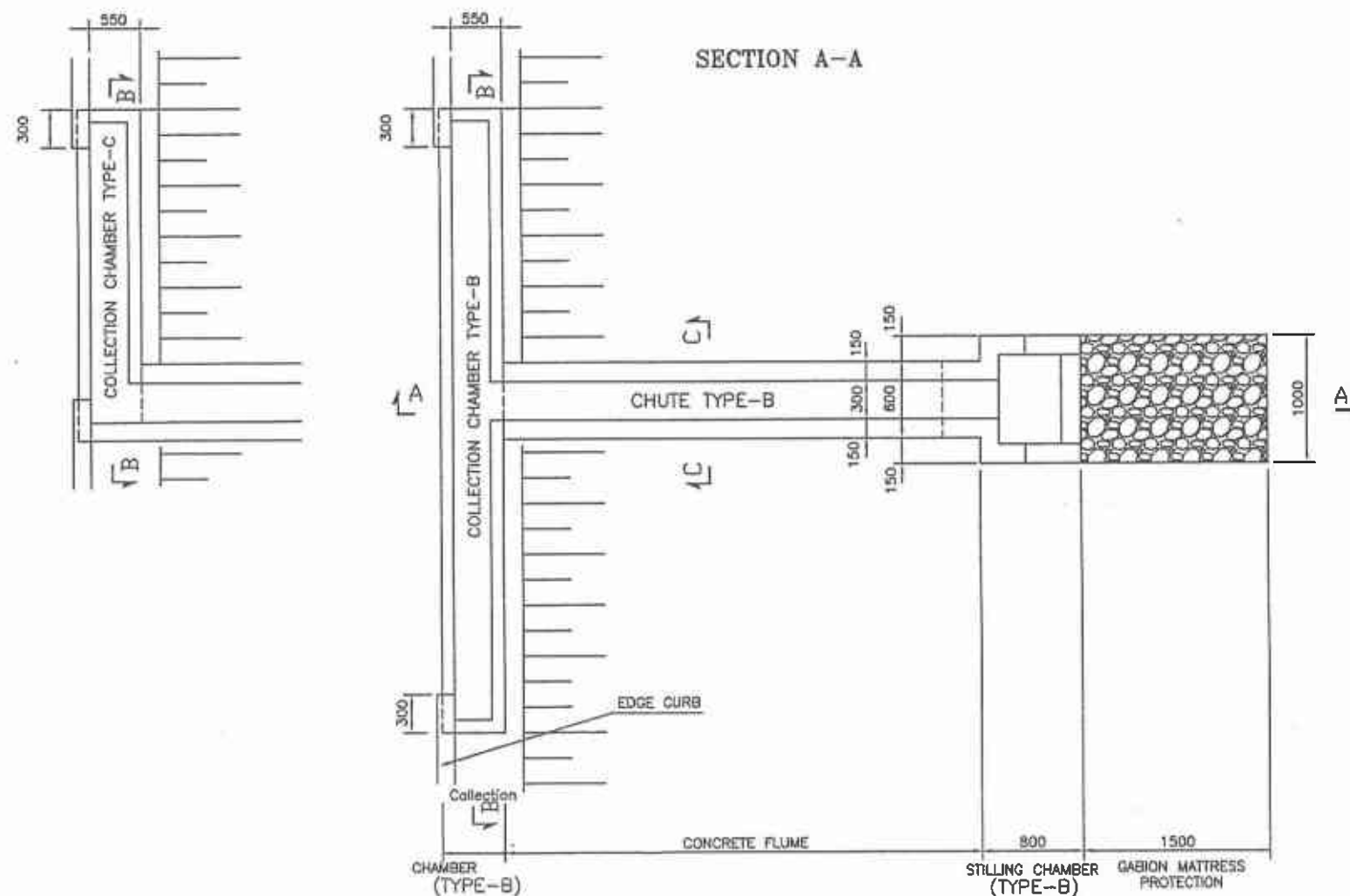
COLLECTION CHAMBER TYPE-C
SECTION B-B



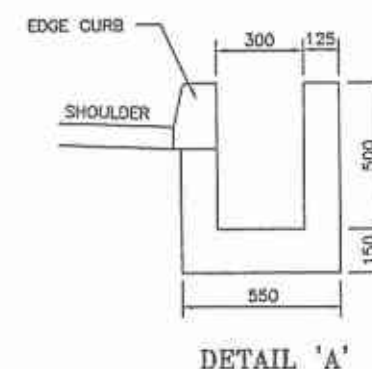
SECTION C-C



SECTION D-D



PLAN



DETAIL 'A'

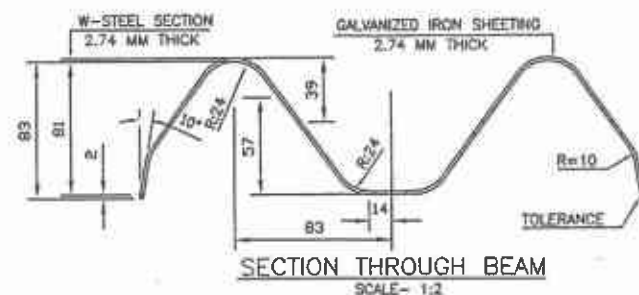


TENDER DRAWINGS

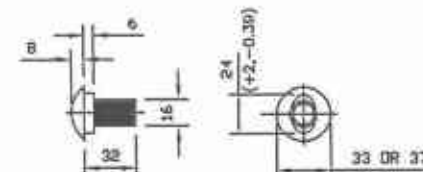
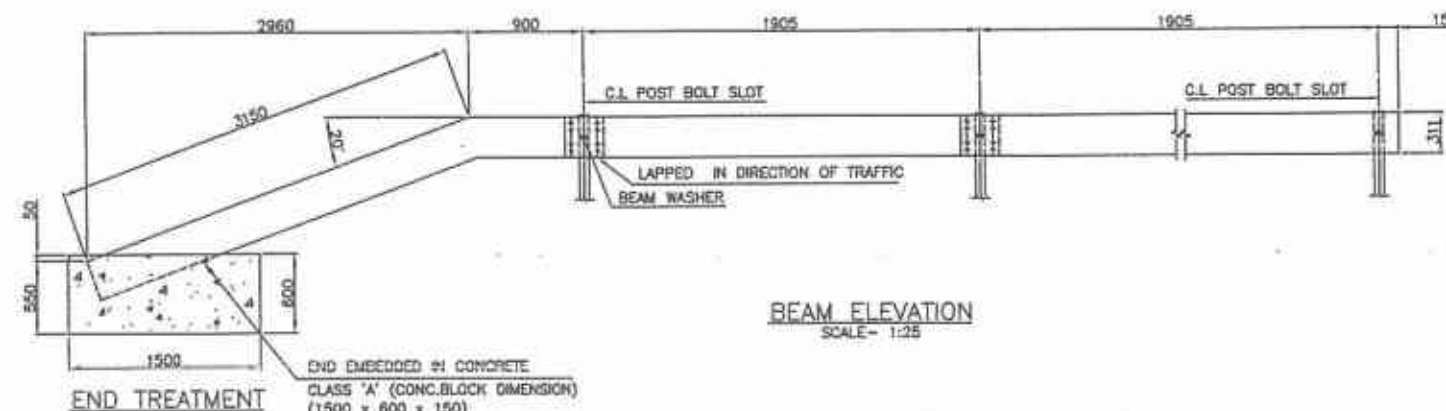
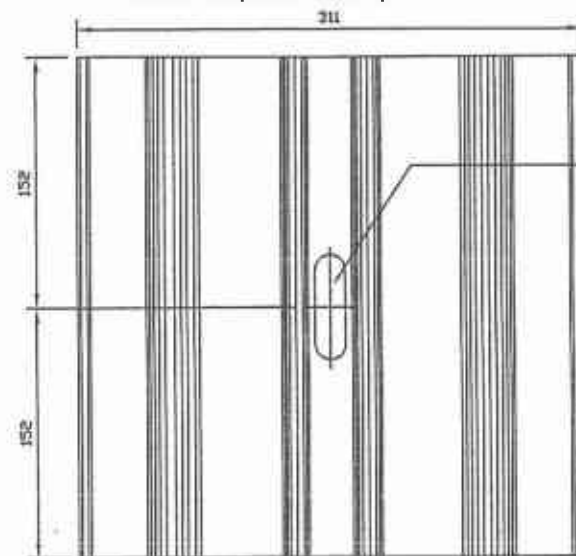
NOTES

1 - ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

<p>GOVERNMENT OF PAKISTAN MINISTRY OF COMMUNICATIONS NATIONAL HIGHWAY AUTHORITY</p>	<p>NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD.</p>	<p>04 03 02 01 REV. DATE DESCRIPTION APPROVED</p>	<p>DRAWN BY RAJA SHAFIQ SUBMITTED BY RECOMMENDED BY CHD./VER. BY APPROVED BY</p>	<p>RATODERO ~ RAJANPUR ROAD SECTION-V (ROJHAN TO RAJANPUR)</p>	<p>TITLE CONCRETE CHUTE (2) DATE MARCH 2020 DRAWING NO. 3905/102/TD/ D-03 SCALE REV.</p>
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BEAM BACK-UP PLATE
(DIMENSIONS SAME AS SEC. THROUGH BEAM)
SCALE- 1:2
NOTE:- THIS PLATE IS PLACED BEHIND RAIL ELEMENTS AT INTERMEDIATE STEEL POST. (NON-SPLICE POST)

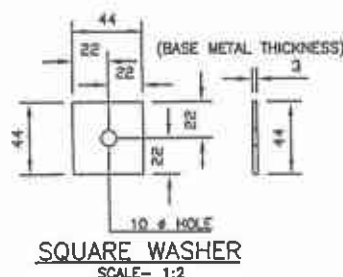


Ø16 BUTTON HEAD BOLT
SCALE- 1:2

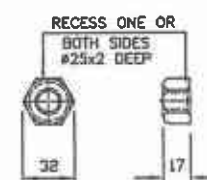


Ø10 HEX NUT
SCALE- 1:2

NOTE:- THIS BOLT AND SQUARE WASHER ARE USED TO FASTEN "W" BEAM RAIL ELEMENTS TO POSTS.

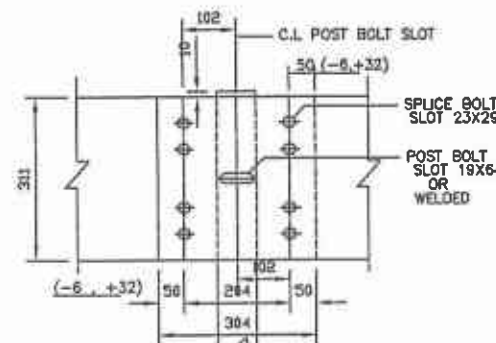


SQUARE WASHER
SCALE- 1:2



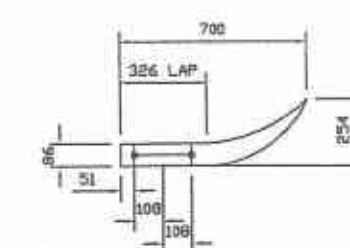
Ø16 RECESS NUT
SCALE- 1:2

NOTE:- THIS BOLT IS USED TO SPLICE RAIL ELEMENT.

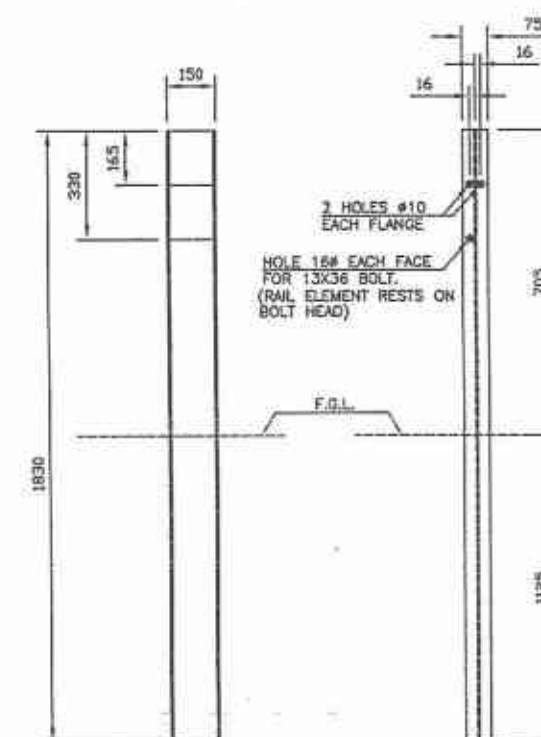


SECTION THROUGH BEAM
SCALE- 1:25

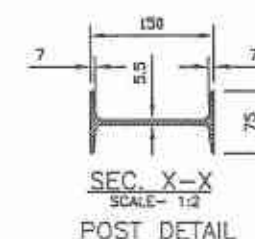
NOTE:- GUARDRAIL LENGTHS ARE TENTATIVE & ANY ADDITION/SUBTRACTION IN GAURD RAIL LENGTHS WILL BE DONE BY THE ENGINEERS REPRESENTATIVE KEEPING IN VIEW THE SITE REQUIREMENT



W-BEAM
TERMINAL SECTION



POST ELEVATION
SCALE- 1:10

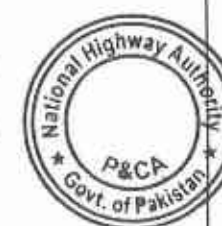


SEC. X-X
SCALE- 1:2
POST DETAIL

NOTES:-

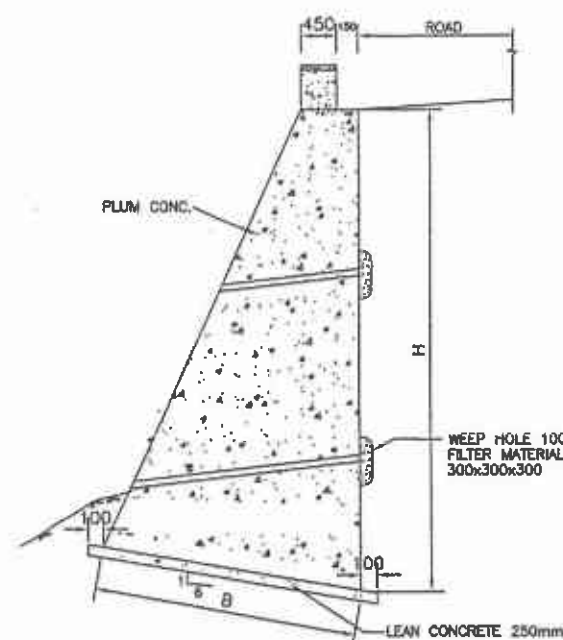
- PROVIDE CONC. CLASS "A" AROUND POSTS WHEREVER DRIVING IS NOT POSSIBLE.
- HEIGHT OF POST MAY VARY AS PER SITE REQUIREMENTS.
- 16 Ø BOLT NOT REQUIRED IF BACKUP PLATE IS USED.
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.

TENDER DRAWINGS

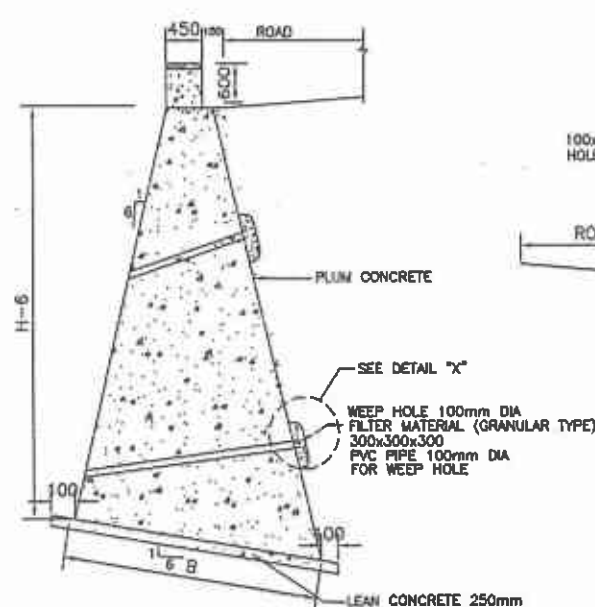


04		AWAZUL HAQ	DRAWN BY	RAJA SHAFIQ
03		Project Manager	SUBMITTED BY	
02		W/S NESPAC	RECOMMENDED BY	
01			CHD./VER. BY	
REV.	DATE	DESCRIPTION	APPROVED	APPROVED BY

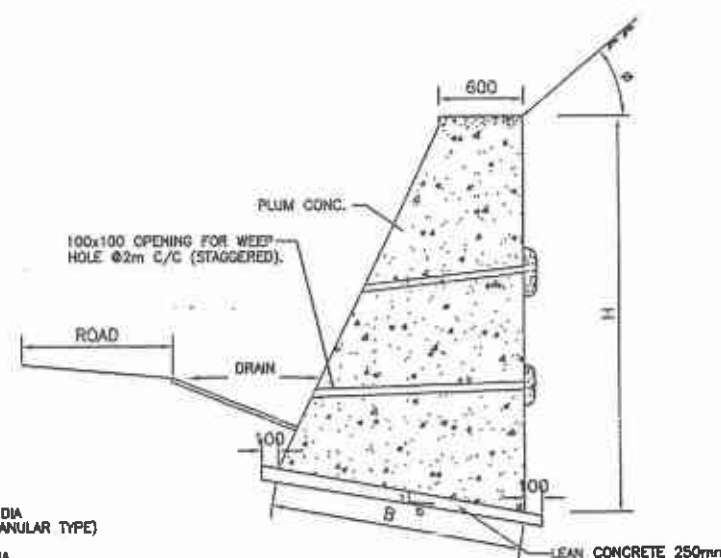
TITLE	LIST AND DETAILS OF W-BEAM GUARDRAIL WITH STEEL POST	SCALE
DATE	MARCH 2020	REV.
DRAWING NO.	3905/102/TD/	GR-01



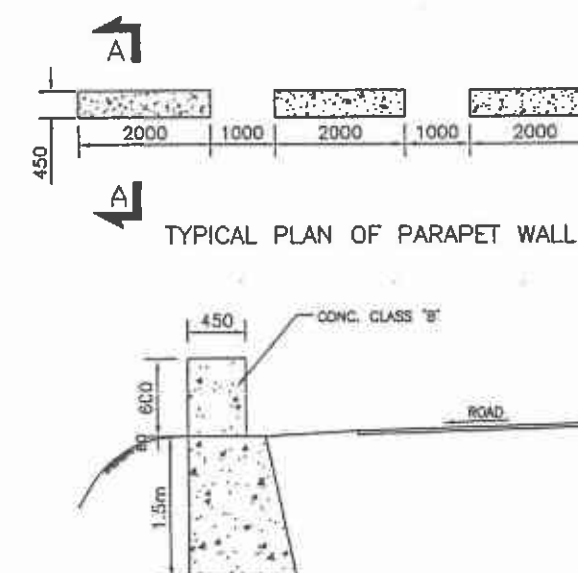
TYPICAL SECTION OF PLUM CONCRETE
RETAINING WALL TYPE 1



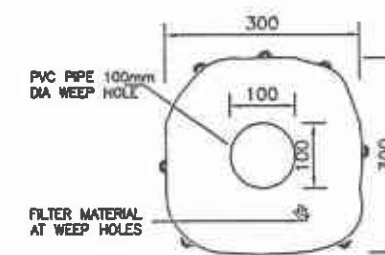
TYPICAL SECTION OF PLUM CONCRETE
RETAINING WALL TYPE 2



TYPICAL SECTION OF PLUM CONCRETE
RETAINING/BREAST WALL TYPE 3



APPLICABLE WHERE NO RETAINING WALL EXISTS
SECTION A-A



DETAIL "X"

TABLE:-

TYPE-1	
H (m)	B (m)
1.50	0.60
2.00	0.80
2.50	1.00
3.00	1.20
3.50	1.50
4.00	1.80
4.50	2.00
5.00	2.30
5.50	2.60
6.00	2.90
7.00	3.40
8.00	3.90

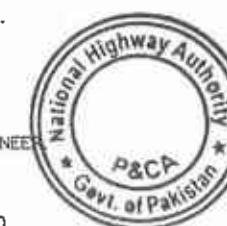
TYPE-2	
H (m)	B (m)
1.50	0.80
2.00	1.05
2.50	1.40
3.00	1.70
3.50	2.10
4.00	2.40
4.50	2.70
5.00	3.00
5.50	3.30
6.00	4.00
7.00	4.70
8.00	5.50
9.00	6.00
10.00	6.60
11.00	7.20
12.00	7.80

TYPE-3 $\phi < 40'$	
H (m)	B (m)
1.50	0.80
2.00	1.00
2.50	1.40
3.00	1.70
3.50	2.00
4.00	2.40
4.50	2.70
5.00	3.00
5.50	3.30
6.00	3.70
6.50	4.00
7.00	4.40
7.50	4.70
8.00	5.00

TYPE-3 $\phi \geq 40'$	
H (m)	B (m)
1.50	1.10
2.00	1.40
2.50	1.70
3.00	2.00
3.50	2.30
4.00	2.70
4.50	3.00
5.00	3.60
5.50	3.90
6.00	4.30
6.50	4.70
7.00	5.00

NOTES

- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
- WEEP HOLES PVC PIPE 100mm DIA SHALL BE STAGGERED AT AN INTERVAL OF 2m VERTICAL AND HORIZONTAL AND AS ADDITIONALLY DIRECTED BY THE ENGINEER.
- THE SLOPE OF WEEP HOLE SHALL BE 1 IN 8 FROM BACK OF THE WALL TO THE OUTER FACE OR AS DIRECTED BY THE ENGINEER.
- TYPE OF RETAINING WALL SHALL BE DECIDED BY THE ENGINEER AS PER SITE CONDITIONS KEEPING FOLLOWING IN VIEW:
 - TYPE 1 RETAINING WALL SHALL BE PROVIDED WHERE THE ROAD IS WELL AWAY FROM THE NALLAH, RIVER/RIVINE.
 - TYPE 2 RETAINING WALL SHALL BE PROVIDED WHERE THE ROAD IS IN CLOSE VICINITY OF THE RIVER/RIVINE OR CLIFF FACE.
 - TYPE 3 RETAINING WALL SHALL BE PROVIDED TO RETAIN THE SCREED MATERIAL (BREAST WALL).
- PLUM CONCRETE (70% CONCRETE CLASS 'B' & 30% ROCK FILL MATERIAL HAVING STONE SIZE RANGING BETWEEN 200-300) BE UTILIZED.
- PCC PARAPET SHALL BE PROVIDED AT TOP OF RETAINING WALL AND AT OTHER HAZARDOUS LOCATIONS. GUARD RAIL SHALL BE PROVIDED OVER 4m HIGH FILL OR AS DIRECTED BY THE ENGINEER.
- VERTICAL SLOPE TO THE OUTER FACE OF THE RETAINING WALL TYPE 2 CAN BE CHANGED UP TO 1 IN 10.
- PAYMENT FOR WEEP HOLES AND FILTER MATERIAL IS INCLUDED IN THE COST OF OTHER ITEMS AND SHALL NOT BE PAID SEPARATELY.

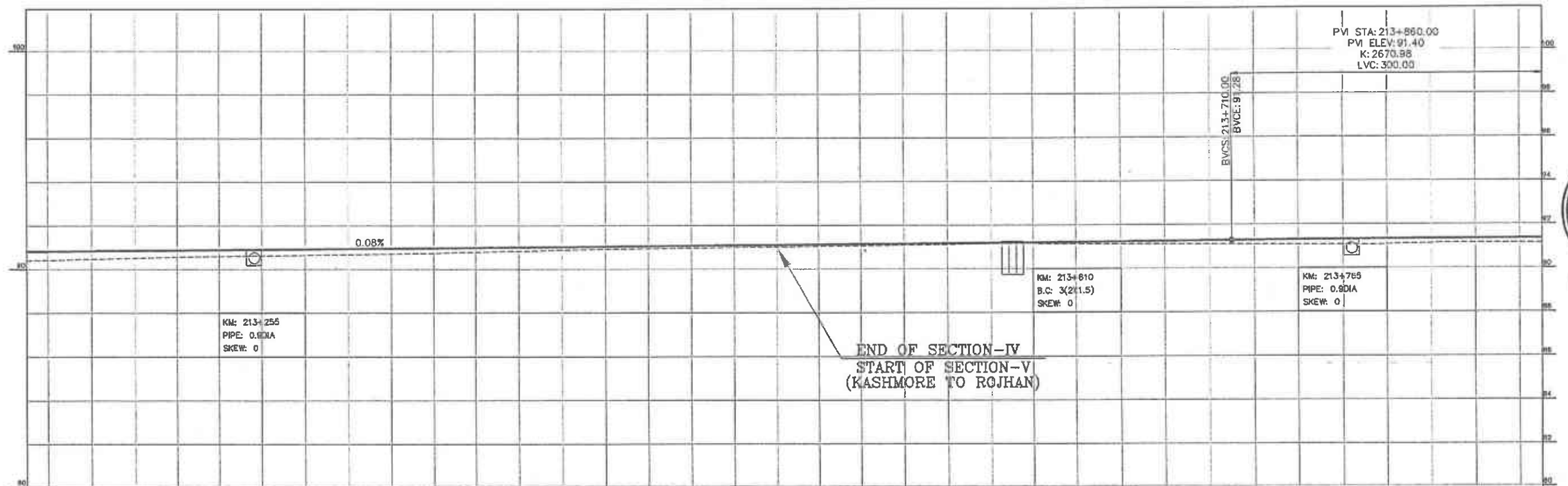
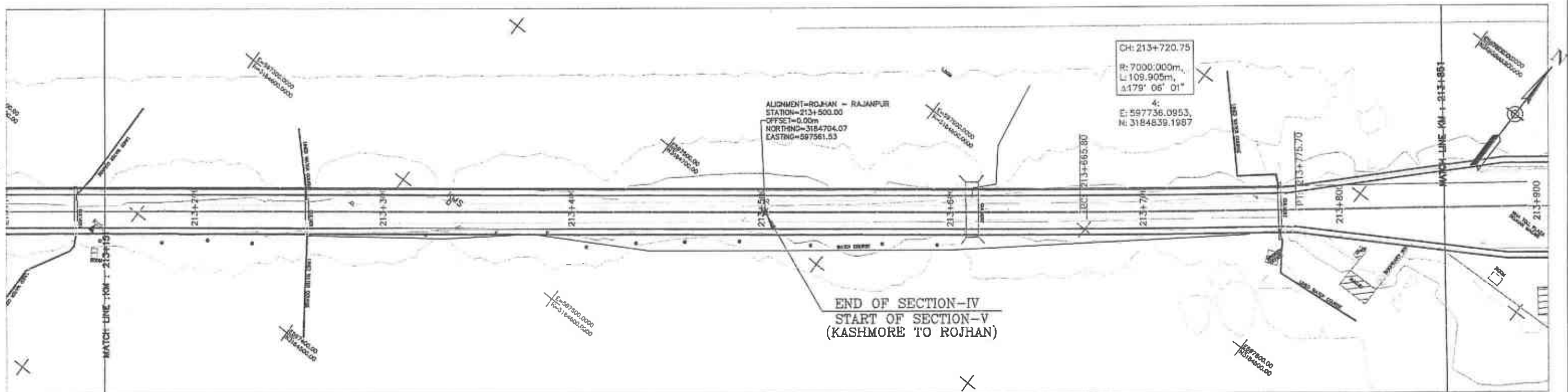


TENDER DRAWINGS

PLANS & PROFILE



TENDER DRAWINGS

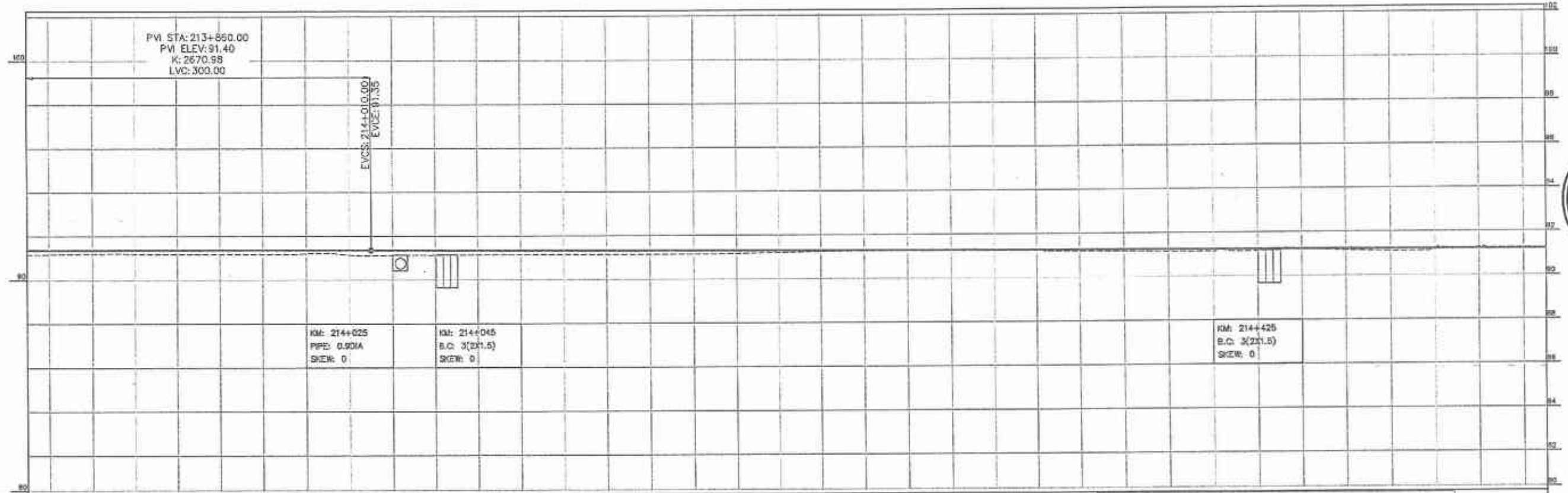
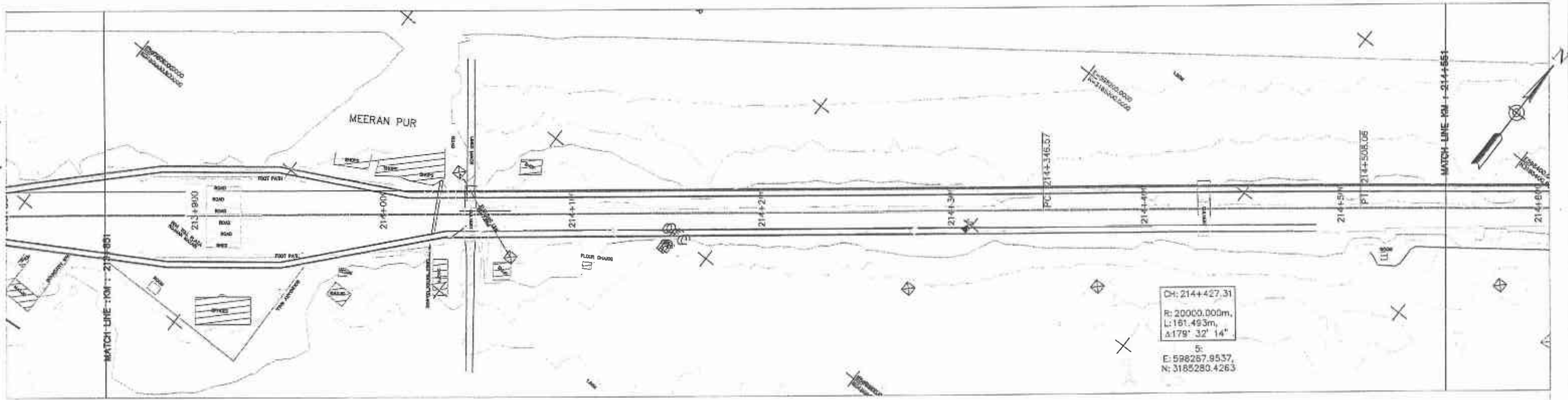


Horizontal Geometry	TANGENT 800.83																		CURVE R=7000.00																		TANGENT 570.56									
Superelevation																																														
Design Levels	90.827	90.844	90.860	90.876	90.893	90.909	90.925	90.942	90.958	90.975	90.991	91.007	91.024	91.040	91.056	91.073	91.089	91.105	91.122	91.138	91.155	91.171	91.187	91.204	91.220	91.236	91.253	91.269	91.285	91.300	91.314	91.325	91.336	91.345	91.352											
Ground Levels	90.404	90.426	90.473	90.520	90.567	90.597	90.626	90.653	90.679	90.709	90.743	90.790	90.832	90.878	90.920	90.942	90.968	90.993	91.015	91.038	91.061	91.083	91.111	91.180	91.175	91.137	91.126	91.115	91.105	91.096	91.084	91.076	91.086	91.125	91.151	91.151										
Chainage	213+150	213+200					213+300					213+400					213+500					213+600					213+700					213+800					213+850									
	91.156																																													



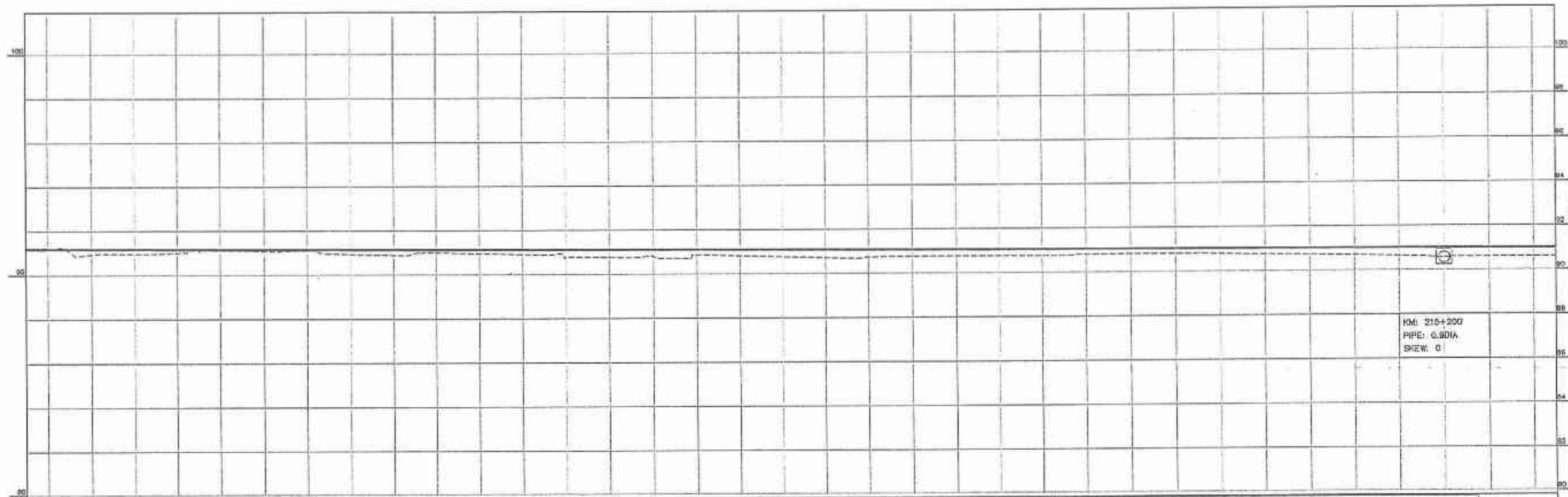
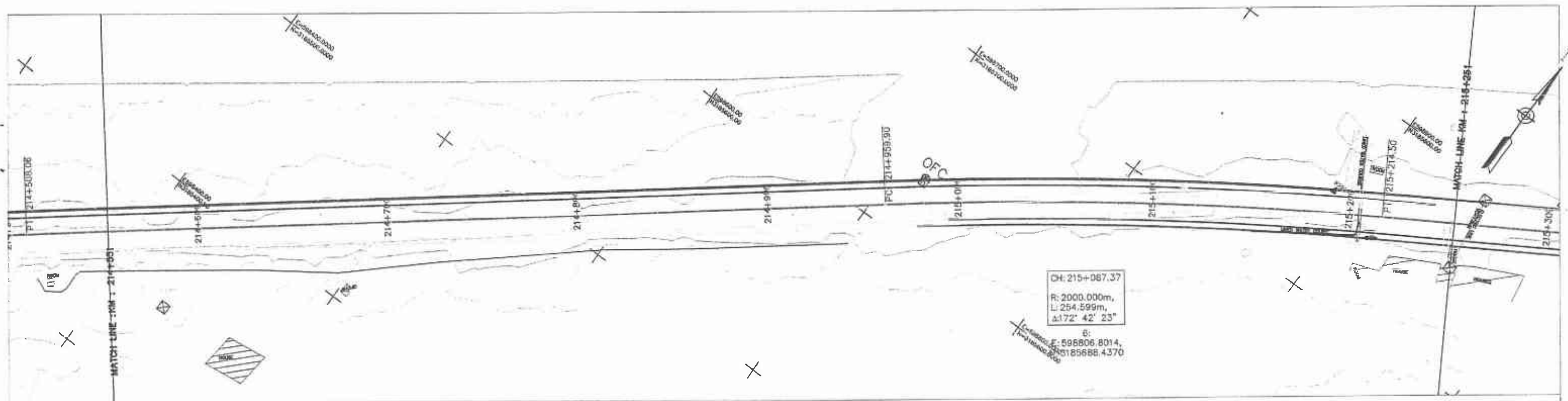
TENDER DOCUMENT

GOVERNMENT OF PAKISTAN MINISTRY OF COMMUNICATIONS NATIONAL HIGHWAY AUTHORITY	NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD.	 Project Manager M/S NESPAK	DRAWN SUBMITTED RECOMMENDED CHD./VER. APPROVED	RATODERO ~ RAJANPUR ROAD (SECTION-V) (ROJHAN TO RAJANPUR)	PLAN & PROFILE KM: 213+150 ~ KM: 213+850 DATE: MARCH 2020 DWG NO.: 3905/102/TD/P&P307	SCALE 1:2000
			REV. DATE DESCRIPTION APPROVED			

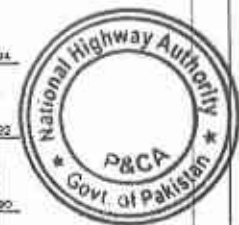


Stationing	TANGENT 570.86																				CURVE R=20000.00																				TANGENT 481.84																													
Superlevation																																																																						
Design Levels			91.362		91.365		91.367		91.366		91.365		91.362		91.357		91.351		91.345		91.339		91.333		91.327		91.321		91.315		91.308		91.302		91.296		91.290		91.284		91.278		91.272		91.266		91.260		91.254		91.248		91.241		91.235		91.229		91.223		91.217		91.211		91.205		91.199		91.193	
Ground Levels	91.106	91.172	91.201		91.189		91.174		91.180		91.179		91.202		91.137		91.126		91.135		91.142		91.145		91.149		91.148		91.147		91.146		91.166		91.202		91.239		91.275		91.275		91.257		91.241		91.245		91.184		91.161		91.140		91.103		91.146		91.209		91.158		91.107		91.230		91.283		91.234	
Chainage	213+850				213+900				214+000				214+100				214+200				214+300				214+400				214+500				214+550																																					

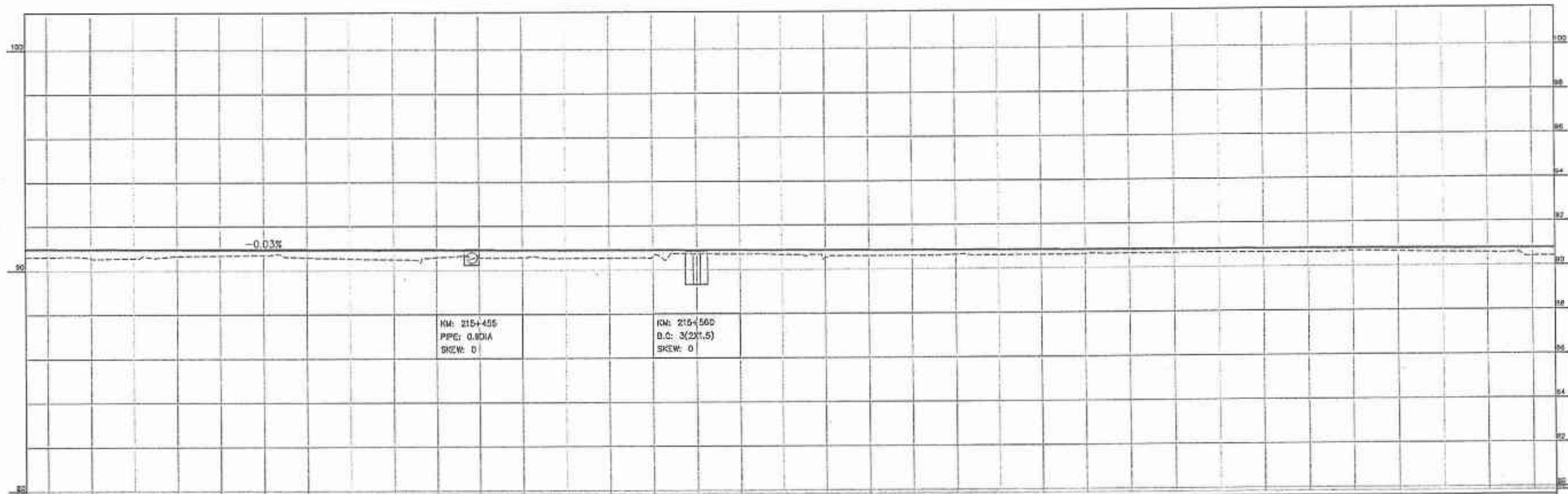
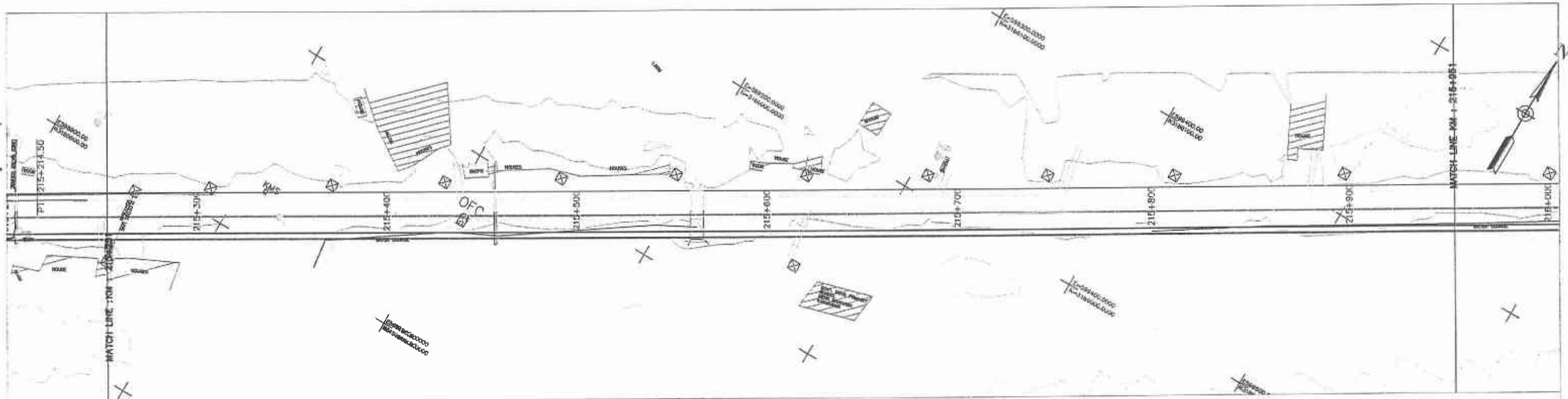




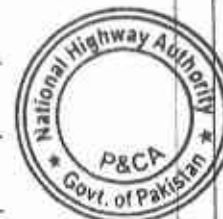
Horizontal: Geometry	TANGENT 451.84																				CURVE R=1000.00										TANGENT 1095.73						
Subgrade elevation	2100.5																				2100.5										2100.5						
Design levels		91.186	91.180	91.174	91.168	91.162	91.156	91.150	91.144	91.138	91.132	91.126	91.119	91.113	91.107	91.101	91.095	91.089	91.083	91.077	91.071	91.064	91.058	91.052	91.046	91.040	91.034	91.028	91.022	91.016	91.010	91.004	90.997	90.991	90.985	90.979	
Ground Levels	91.230	91.220	90.941	90.962	91.008	91.132	91.082	91.112	90.933	90.888	91.003	90.942	90.913	90.770	90.764	90.801	90.848	90.818	90.767	90.716	90.732	90.757	90.780	90.769	90.762	90.804	90.810	90.812	90.795	90.755	90.731	90.694	90.649	90.554	90.596	90.601	90.604
Chainage	214+550	214+600			214+700			214+800			214+900			215+000			215+100			215+200			215+250														



FOR DRAWING
 30/10/2020



Horizontal Distance	TANGENT 1085.23																			
Superelevation																				
Design Levels	90.973	90.967	90.961	90.955	90.949	90.942	90.936	90.930	90.924	90.918	90.912	90.906	90.900	90.894	90.888	90.882	90.875	90.869	90.863	90.857
Ground Levels	90.904	90.613	90.555	90.536	90.551	90.582	90.592	90.596	90.630	90.682	90.664	90.572	90.526	90.540	90.563	90.710	90.702	90.690	90.514	90.614
Chainage	215+250	215+300	215+400	215+500	215+600	215+700	215+800	215+900	215+950											



SIGNED & SEALED



GOVERNMENT OF PAKISTAN
MINISTRY OF COMMUNICATIONS
NATIONAL HIGHWAY AUTHORITY

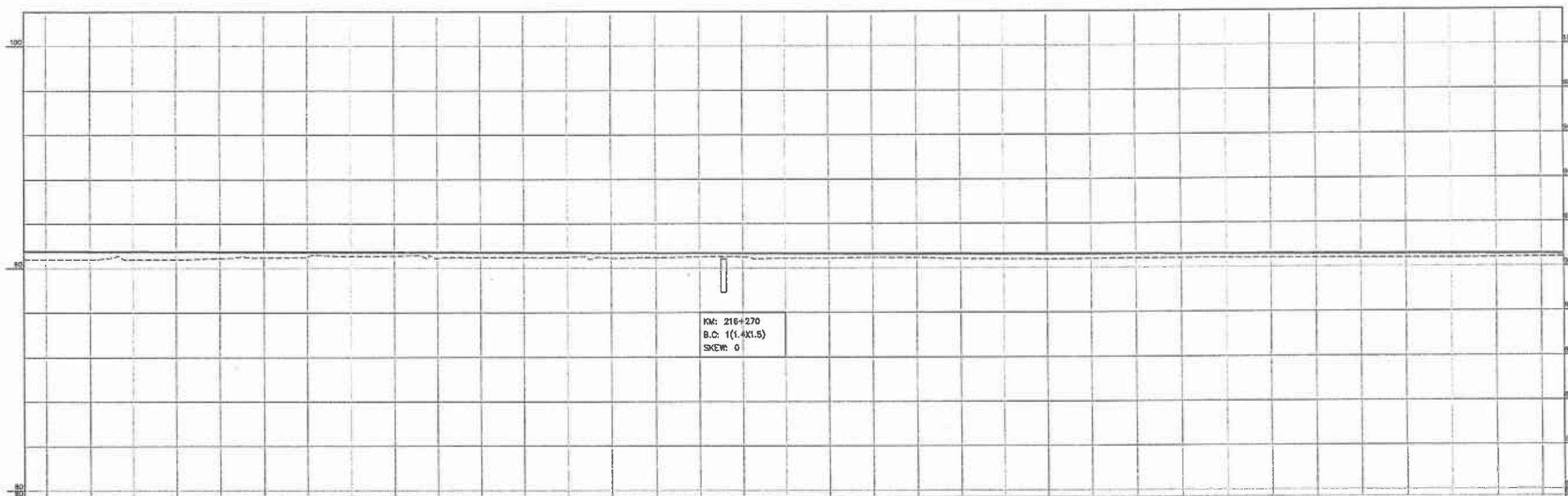
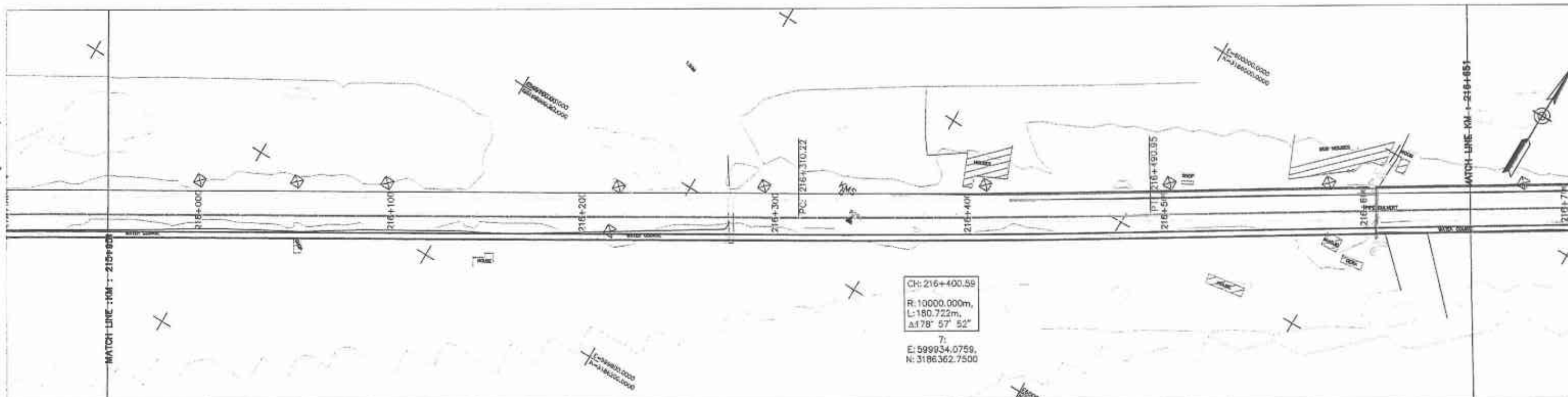


NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD.

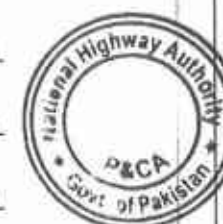
JAWADUL HAO Project Manager M/S NESPAK		DRAWN	
		SUBMITTED	
		RECOMMENDED	
		CHK./VER.	
REV.	DATE	DESCRIPTION	APPROVED

RATODERO ~ RAJANPUR ROAD
(SECTION-V)
(ROJHAN TO RAJANPUR)

PLAN & PROFILE		SCALE
KM: 215+250 ~ KM: 215+950		1:2000
DATE	DWG NO.	
MARCH 2020	3905/102/TO/P&P310	



Horizontal Geometry	TANGENT 1095.73										CURVE R=10000.00										TANGENT 840.67																	
Superelevation																																						
Design Levels	90.760	90.753	90.747	90.741	90.735	90.729	90.723	90.717	90.711	90.705	90.698	90.692	90.686	90.680	90.674	90.668	90.662	90.656	90.650	90.644	90.638	90.631	90.625	90.619	90.613	90.607	90.601	90.595	90.589	90.583	90.576	90.570	90.564	90.558	90.552			
Ground Levels	90.407	90.406	90.397	90.396	90.451	90.476	90.506	90.541	90.562	90.452	90.481	90.480	90.495	90.446	90.475	90.503	90.502	90.438	90.440	90.474	90.466	90.413	90.406	90.377	90.404	90.408	90.413	90.417	90.409	90.401	90.395	90.389	90.384	90.395	90.415			
Chainage	215+950	216+000				216+100				216+200				216+300				216+400				216+500				216+600				216+700				216+800				216+850



GOVERNMENT OF PAKISTAN
MINISTRY OF COMMUNICATIONS
NATIONAL HIGHWAY AUTHORITY

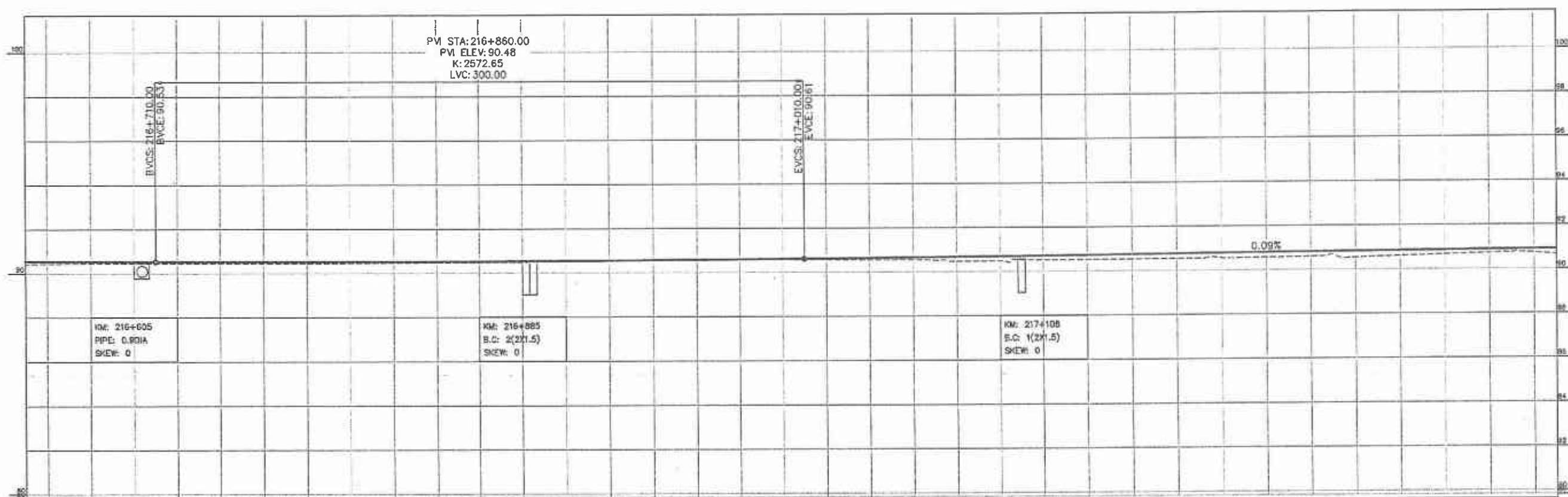
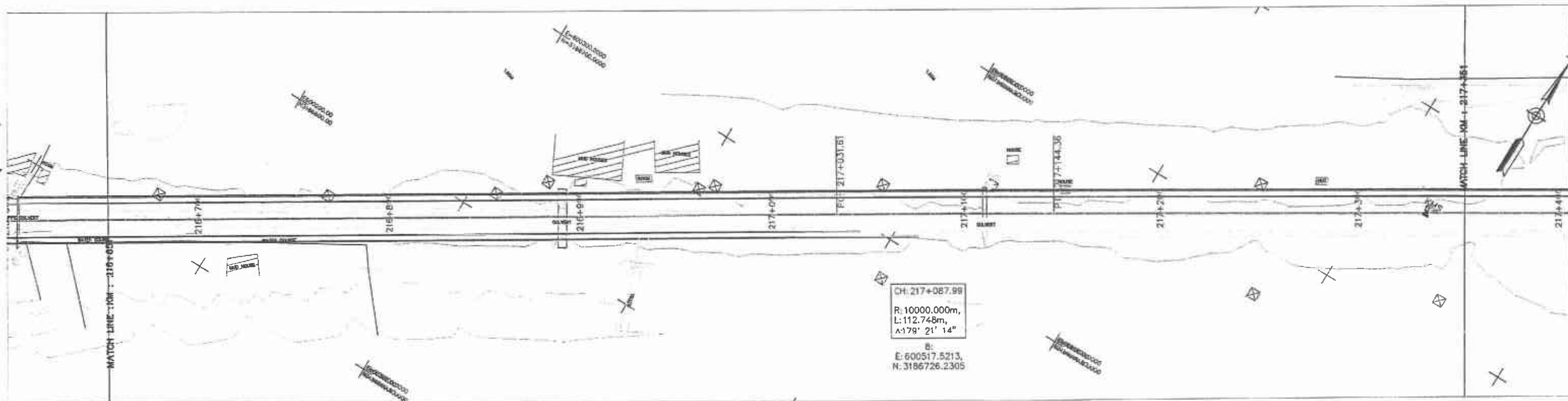


NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD.

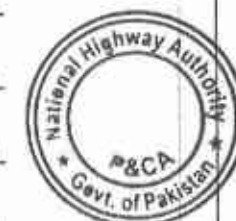
REV.	DATE	DESCRIPTION	APPROVED	APPROVED

RATODERO ~ RAJANPUR ROAD
(SECTION-V)
(ROJHAN TO RAJANPUR)

PLAN & PROFILE		SCALE
KM: 215+950 ~ KM: 216+650		1:2000
DATE	DWG NO.	
MARCH 2020	3905/102/TD/P&P311	

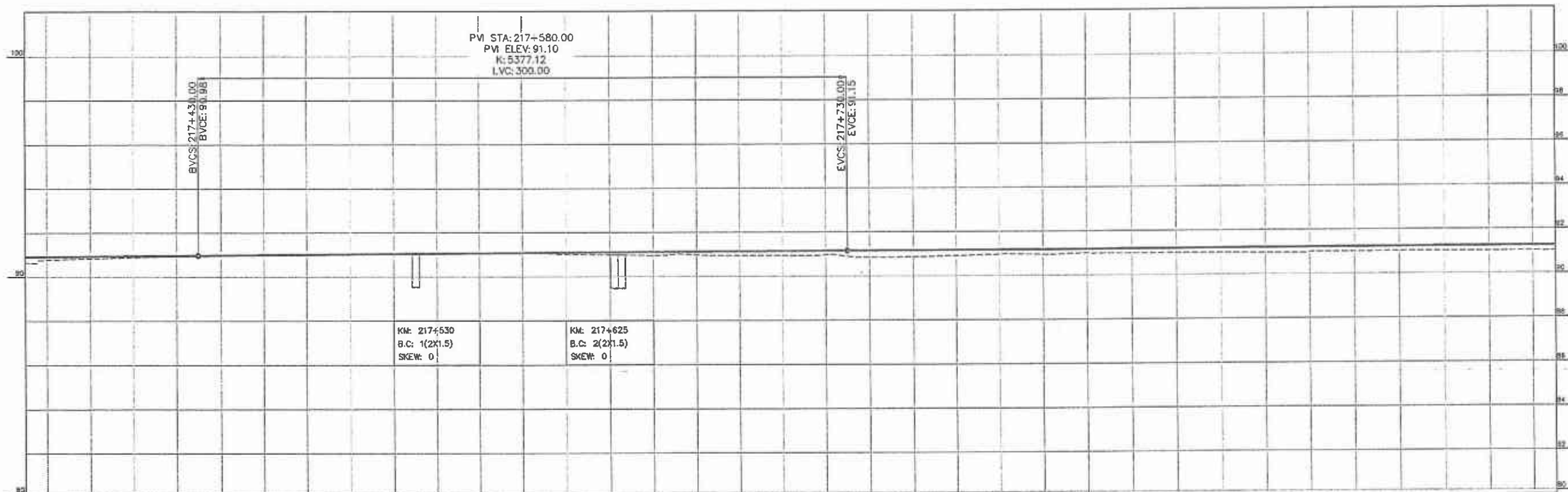
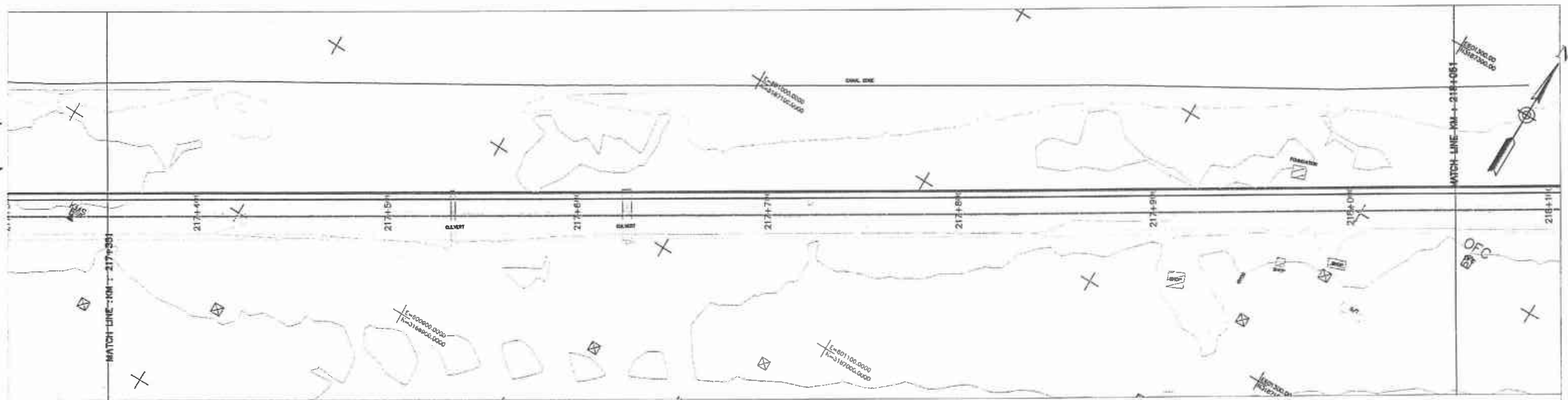


Horizontal Geometry		TANGENT 540.67										CURVE R=10000.00										TANGENT 1271.81															
Subelevation																																					
Design Levels		90.546	90.540	90.534	90.528	90.523	90.520	90.519	90.519	90.521	90.524	90.535	90.543	90.552	90.563	90.576	90.590	90.606	90.623	90.640	90.657	90.674	90.692	90.709	90.726	90.743	90.761	90.778	90.795	90.812	90.829	90.847	90.864	90.881	90.898		
Ground Levels		90.426	90.436	90.451	90.458	90.456	90.452	90.448	90.445	90.451	90.461	90.472	90.483	90.492	90.520	90.542	90.566	90.585	90.600	90.577	90.563	90.553	90.545	90.474	90.480	90.519	90.520	90.529	90.537	90.557	90.571	90.601	90.543	90.611	90.667	90.724	90.726
Chainage		216+650	216+700				216+800				216+900				217+000				217+100				217+200				217+300				217+350						

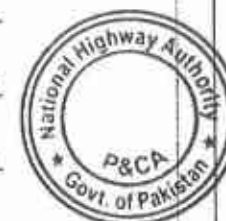


SARFARAZ HAD

GOVERNMENT OF PAKISTAN MINISTRY OF COMMUNICATIONS NATIONAL HIGHWAY AUTHORITY	NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD.	PROJECT MANAGER M/S NESPAK	DRAWN SUBMITTED RECOMMENDED CHD./VER. APPROVED	RATODERO ~ RAJANPUR ROAD (SECTION-V) (ROJHAN TO RAJANPUR)	PLAN & PROFILE KM: 216+650 ~ KM: 217+350 SCALE 1:2000	
			REV. DATE DESCRIPTION APPROVED		DATE MARCH 2020	DWG NO. 3905/102/TD/P&P312



Horizontal Geometry	TANGENT 1271.81																			
Subelevation																				
Design Levels	90.916	90.933	90.950	90.967	90.984	91.001	91.017	91.032	91.046	91.059	91.072		91.095	91.109	91.116	91.125	91.133	91.141	91.147	91.154
Ground Levels	90.838	90.772	90.835	90.834	90.835	90.874	91.028	90.997	91.023	91.043	91.056	91.069	91.104	91.014	90.959	90.943	90.978	90.946	90.938	90.975
Chainage	217+350	217+400				217+500							217+600				217+700			217+800
																				217+900
																				218+000
																				218+050



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2020 MAR 10



GOVERNMENT OF PAKISTAN
MINISTRY OF COMMUNICATIONS
NATIONAL HIGHWAY AUTHORITY

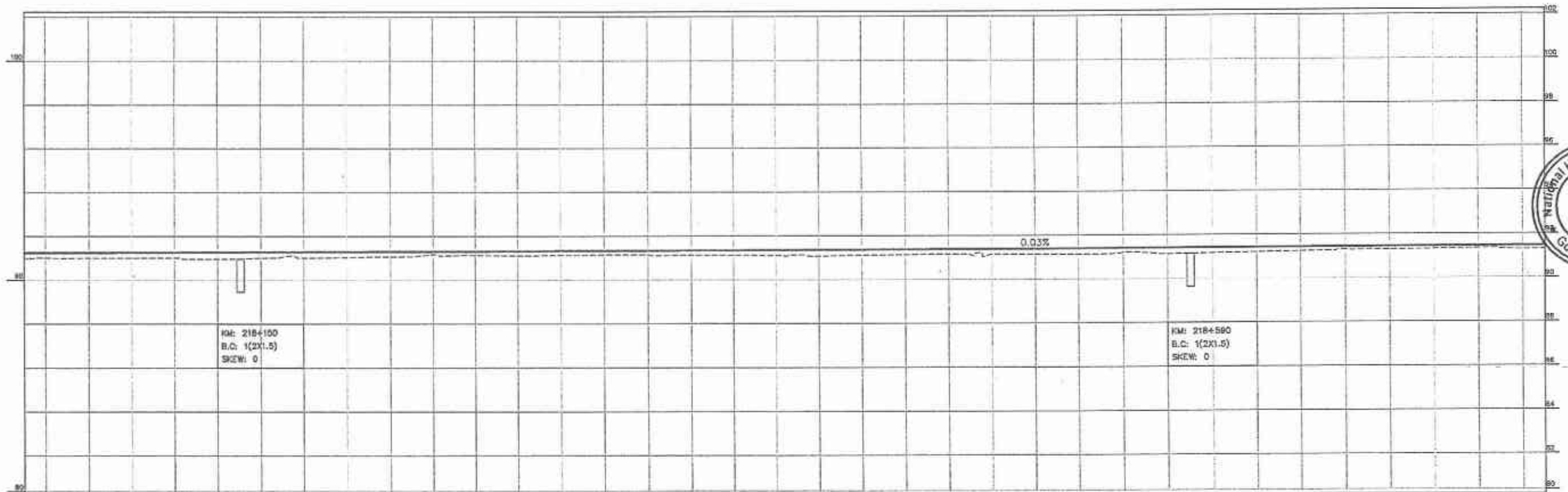
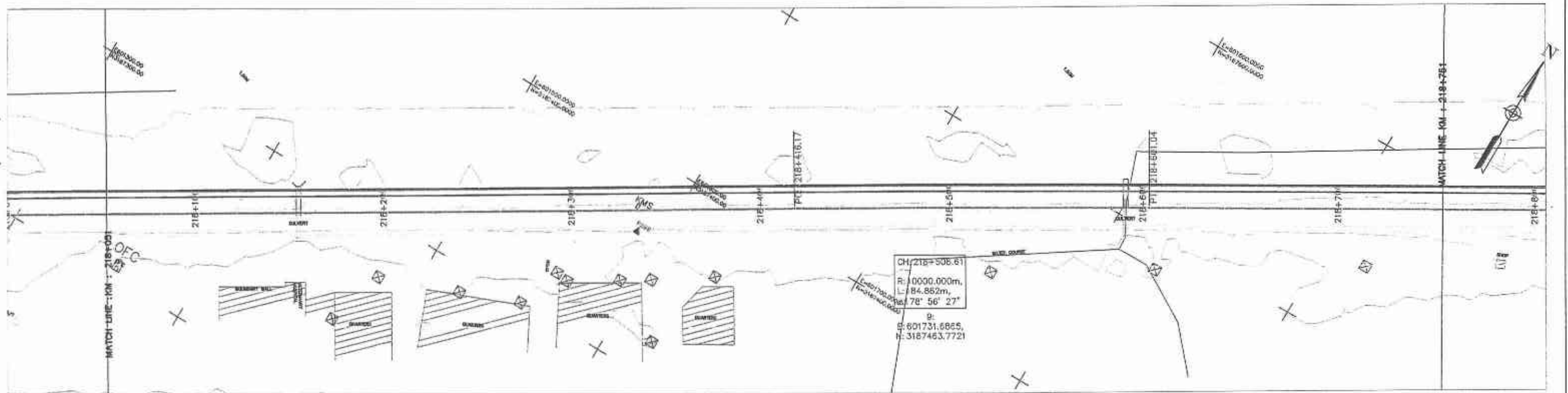


NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD.

REV.	DATE	DESCRIPTION	APPROVED	APPROVED

RATODERO ~ RAJANPUR ROAD
(SECTION-V)
(ROJHAN TO RAJANPUR)

PLAN & PROFILE		SCALE
KM: 217+350 ~ KM: 218+050		1:2000
DATE	DWG NO.	
MARCH 2020	3905/102/TD/P&P313	

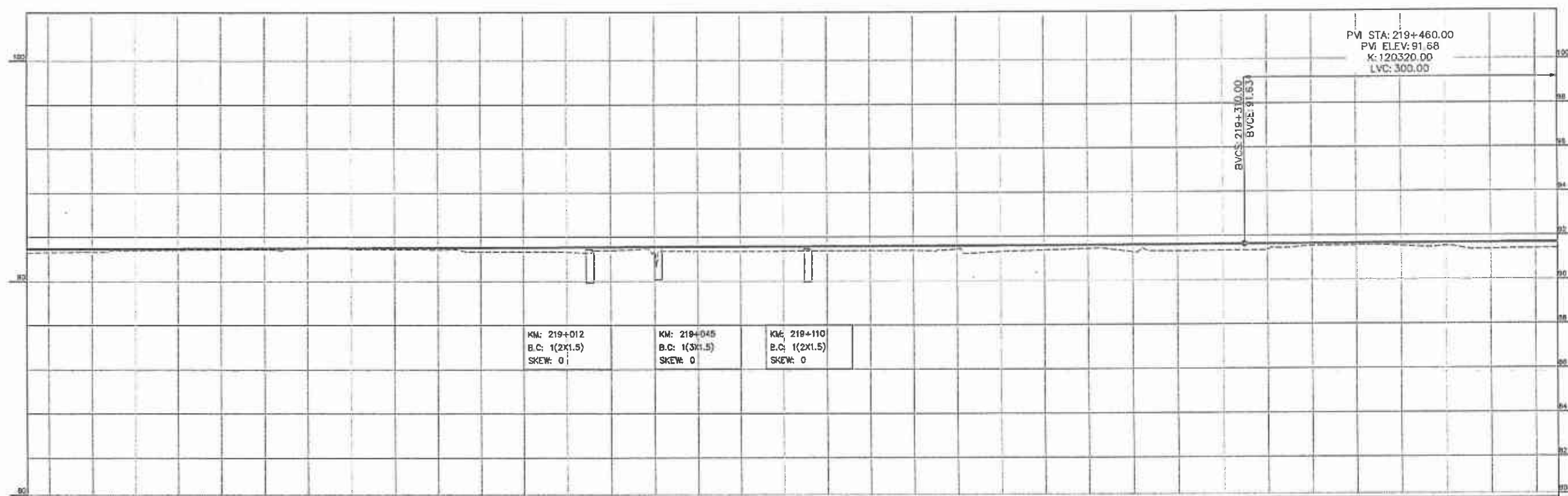
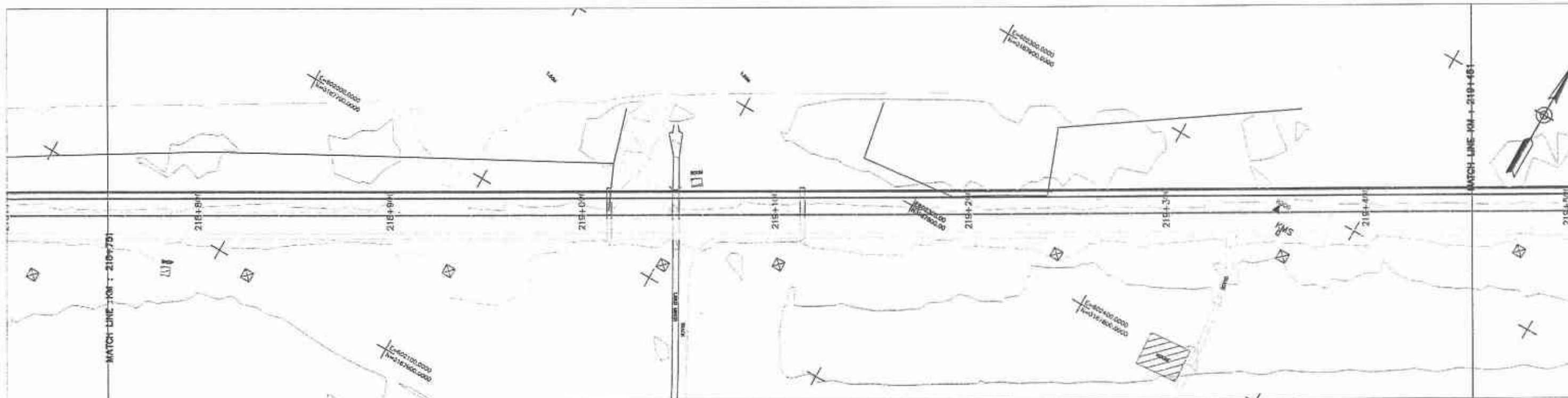


Horizontal Geometry	WIDTH 12.71.31																CURVE R=10000.00																GRADIENT 1573.30															
Superelevation																																																
Design Levels	91.251	91.257	91.263	91.269	91.275	91.281	91.287	91.293	91.299	91.305	91.311	91.317	91.323	91.329	91.335	91.341	91.348	91.354	91.360	91.366	91.372	91.378	91.384	91.390	91.396	91.402	91.408	91.414	91.420	91.426	91.432	91.439	91.445	91.451	91.457													
Ground Levels	91.016	91.001	91.005	91.012	90.962	91.003	91.009	91.036	91.063	91.171	91.134	91.110	91.130	91.144	91.149	91.118	91.115	91.112	91.074	91.111	91.132	91.147	91.155	91.134	91.134	91.196	91.116	91.162	91.198	91.233	91.299	91.288	91.310	91.339	91.283													
Chainage	218+050	218+100			218+200			218+300			218+400			218+500			218+600			218+700			218+750																									



CORRECTION

REV.	DATE	DESCRIPTION	APPROVED	DRAWN	SUBMITTED	RECOMMENDED	CHD./VER.	APPROVED



KM: 219+012
 B.C: 1(2X1.5)
 SKEW: 0

KM: 219+045
 B.C: 1(3X1.5)
 SKEW: 0

KM: 219+110
 B.C: 1(2X1.5)
 SKEW: 0

PVI STA: 219+460.00
 PVI ELEV: 91.68
 K: 120320.00
 LVC: 300.00

BVCS 219+310.00
 BVCE 91.63

TANGENT 1573.30

Station	218+750	218+800	218+900	219+000	219+100	219+200	219+300	219+400	219+450
Design Levels	91.463	91.469	91.475	91.481	91.487	91.493	91.499	91.505	91.511
Ground Levels	91.291	91.306	91.319	91.336	91.347	91.350	91.365	91.371	91.378
Chainage	218+750	218+800	218+900	219+000	219+100	219+200	219+300	219+400	219+450



RAJANPUR
 ROAD
 SECTION-V

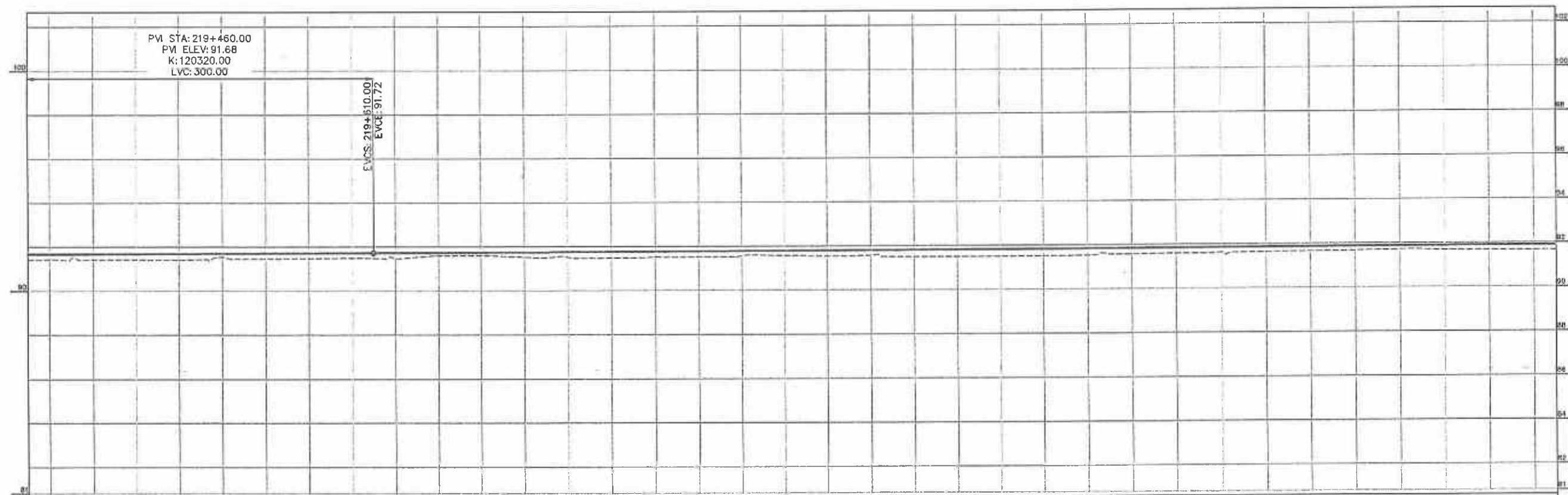
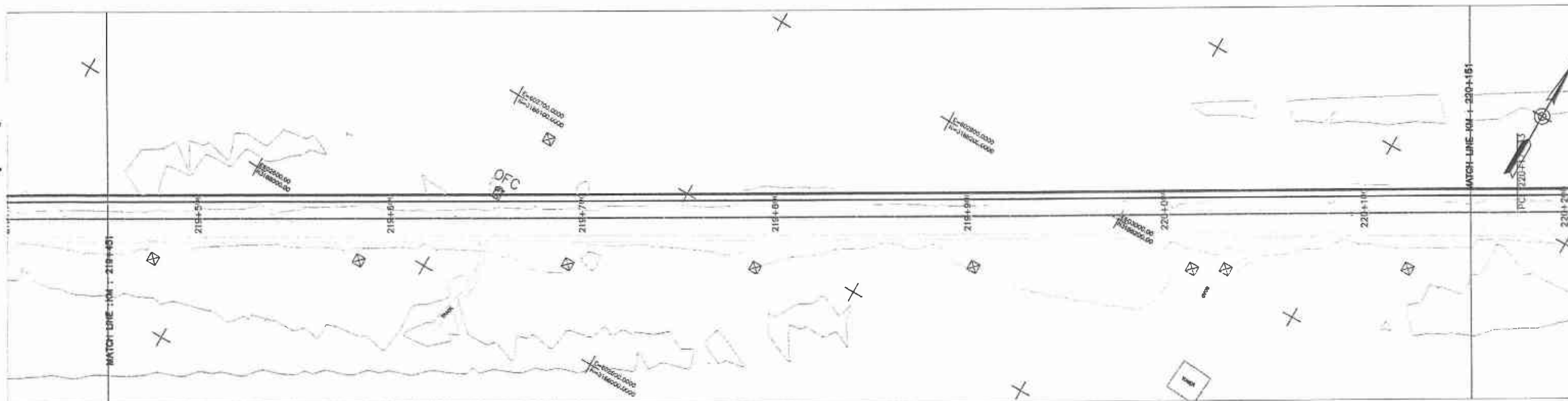
NHA
 GOVERNMENT OF PAKISTAN
 MINISTRY OF COMMUNICATIONS
 NATIONAL HIGHWAY AUTHORITY

NESPAK
 NATIONAL ENGINEERING SERVICES
 PAKISTAN (PVT.) LTD.

REV.	DATE	DESCRIPTION	APPROVED

RATODERO ~ RAJANPUR ROAD
 (SECTION-V)
 (ROJHAN TO RAJANPUR)

PLAN & PROFILE		SCALE
KM: 218+750 ~ KM: 219+450		1:2000
DATE	DWG NO.	
MARCH 2020	3905/102/TD/P&P315	



Horizontal Geometry	TANGENT 1573.30																																																																			
Superelevation																																																																				
Design Levels		91.682		91.689		91.695		91.701		91.708		91.714		91.721		91.728		91.734		91.741		91.747		91.754		91.760		91.767		91.773		91.780		91.787		91.793		91.800		91.806		91.813		91.819		91.826		91.832		91.839		91.846		91.852		91.859		91.865		91.872		91.878		91.885		91.892		91.898
Ground Levels	91.414	91.428	91.421	91.421	91.418	91.546	91.463	91.474	91.484	91.452	91.596	91.600	91.529	91.523	91.480	91.517	91.513	91.564	91.576	91.541	91.578	91.494	91.502	91.507	91.512	91.532	91.574	91.568	91.627	91.636	91.652	91.672	91.711	91.682	91.660	91.660																																
Chainage	219+450	219+500			219+600			219+700			219+800			219+900			220+000			220+100			220+150																																													



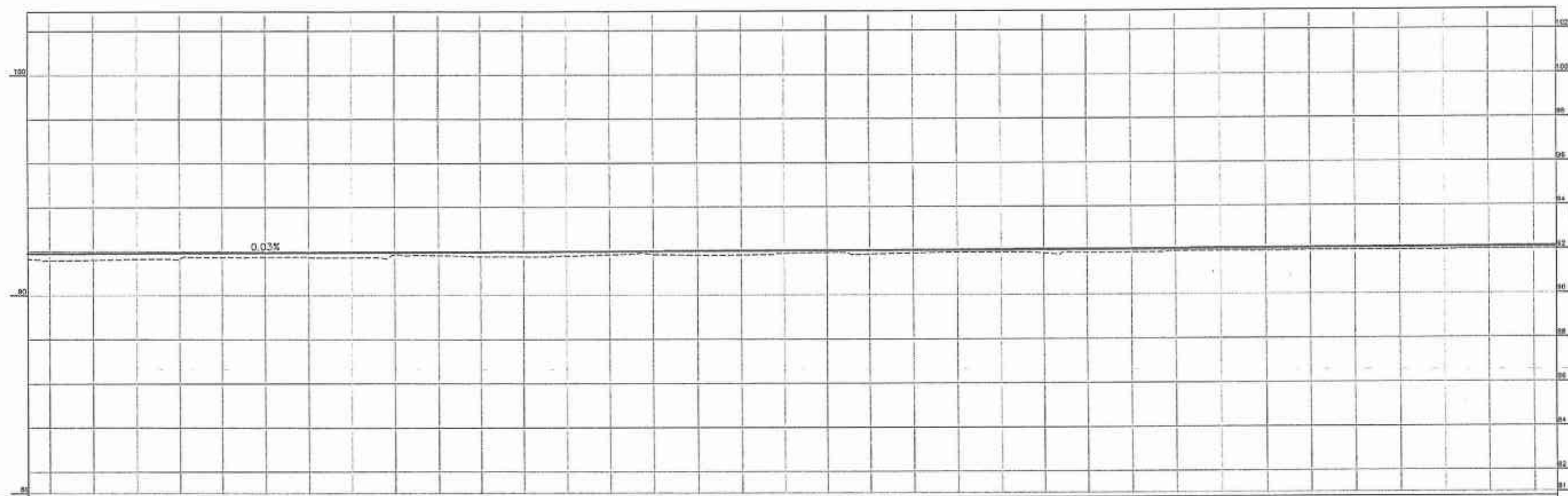
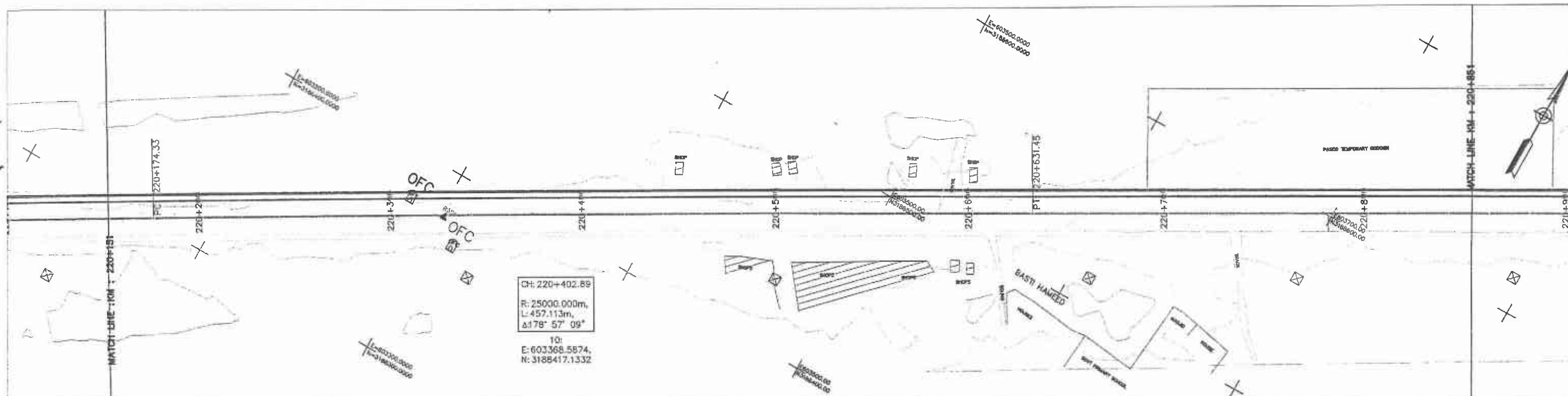
RAJANPUR
 ROAD
 SECTION-V

REV.	DATE	DESCRIPTION	APPROVED

DRAWN
 SUBMITTED
 RECOMMENDED
 CHD./VER.
 APPROVED

RATODERO ~ RAJANPUR ROAD
 (SECTION-V)
 (ROJHAN TO RAJANPUR)

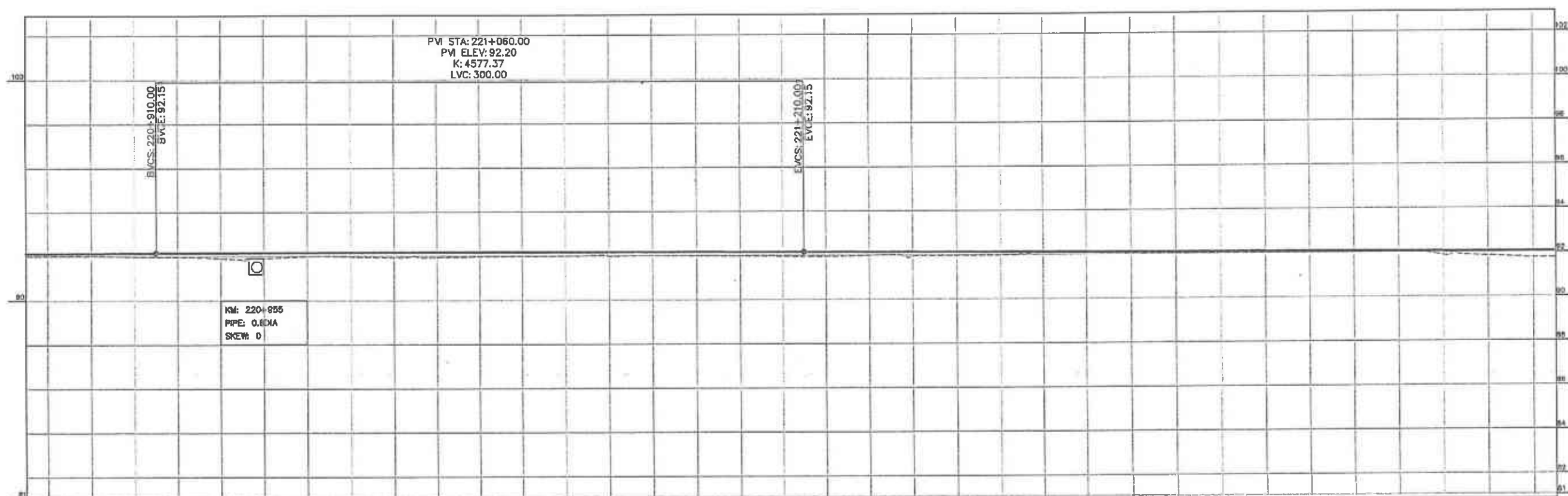
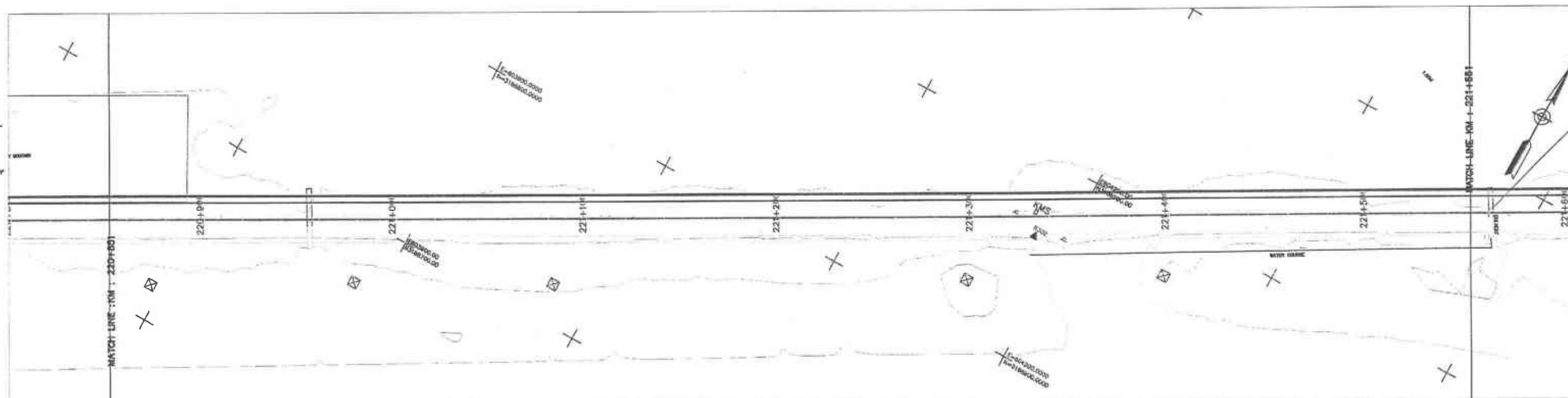
PLAN & PROFILE		SCALE
KM: 219+450 ~ KM: 220+150		1:2000
DATE	DWG NO.	
MARCH 2020	3905/102/TD/P&P316	



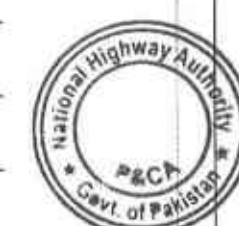
Stationing	220+150	220+200	220+300	220+400	220+500	220+600	220+700	220+800	220+850
Design Levels	91.905	91.911	91.918	91.924	91.931	91.938	91.944	91.951	91.957
Ground Levels	91.582	91.612	91.643	91.666	91.735	91.739	91.738	91.715	91.844



3905/102/ID/P&P317

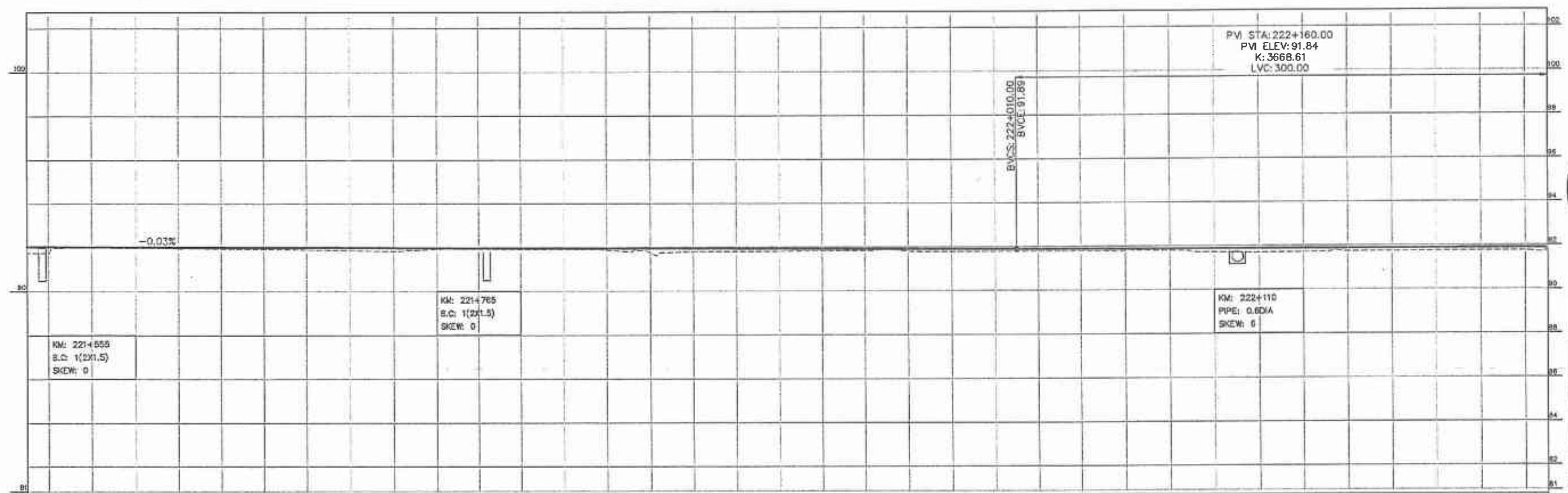
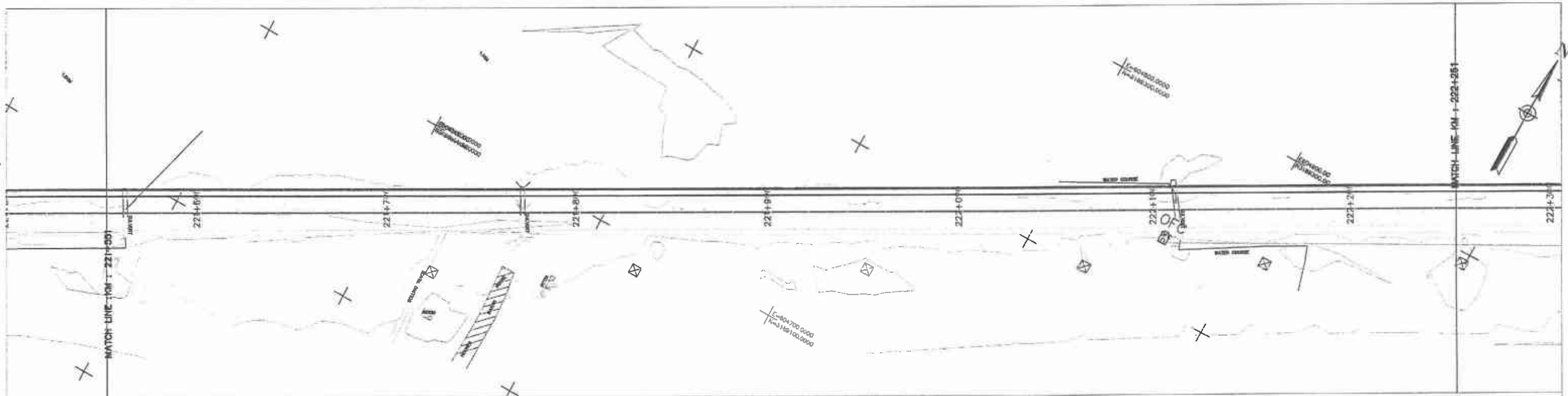


Horizontal: Geometry	TANGENT 2539.71																			
Superelevation:																				
Design levels	92.134	92.141	92.148	92.154	92.160	92.164	92.168	92.171	92.174	92.175	92.175	92.174	92.172	92.168	92.165	92.160	92.154	92.148	92.141	92.135
Ground Levels	92.020	92.027	92.033	91.991	91.973	91.910	91.918	91.995	91.983	91.937	91.936	91.971	91.983	91.999	91.986	91.974	91.958	91.945	91.991	91.963
Chainage	220+850	220+900	220+950	221+000	221+050	221+100	221+150	221+200	221+250	221+300	221+350	221+400	221+450	221+500	221+550	221+600	221+650	221+700	221+750	221+800



COMPAVED SECTION

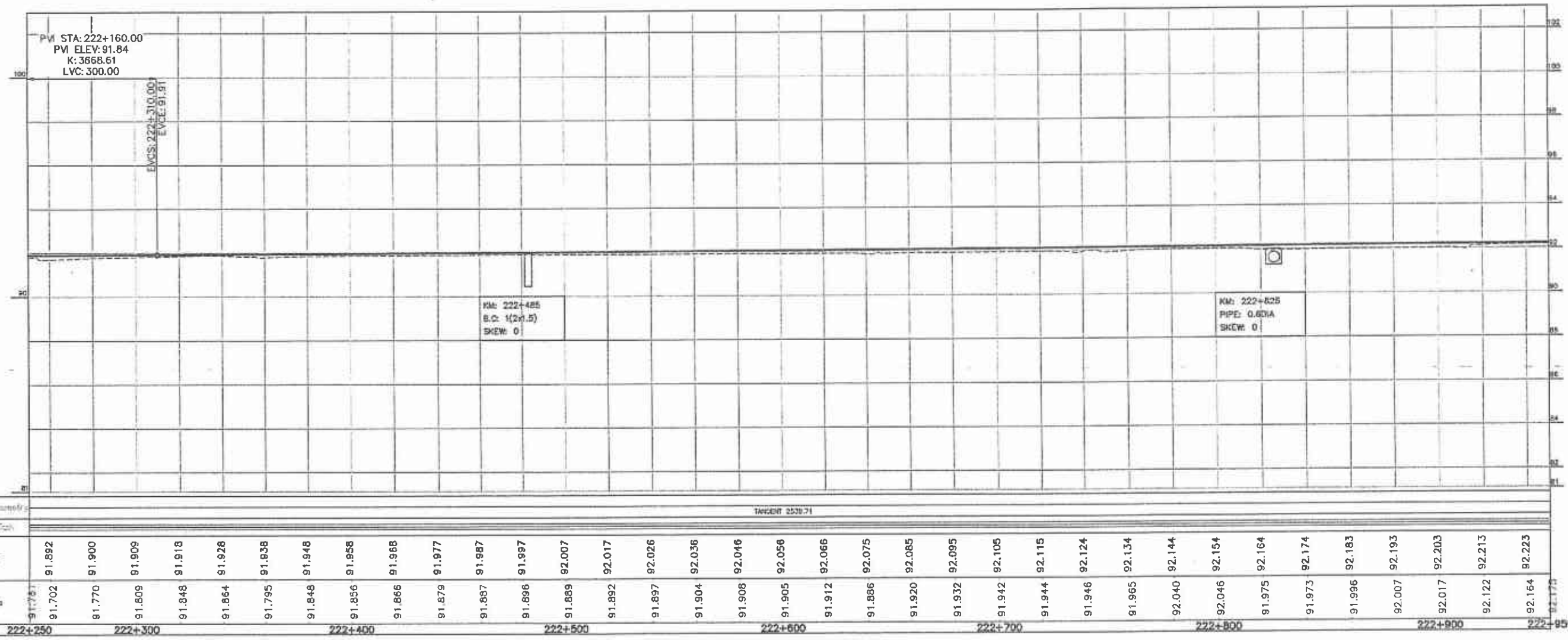
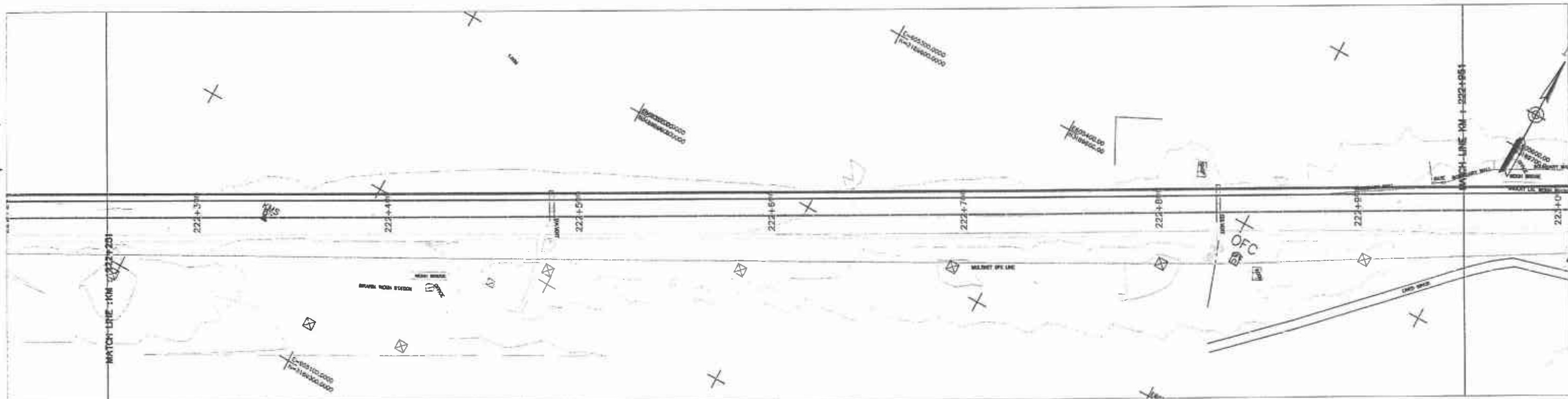
 GOVERNMENT OF PAKISTAN MINISTRY OF COMMUNICATIONS NATIONAL HIGHWAY AUTHORITY	 NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD.	REV.	DATE	DESCRIPTION	APPROVED	APPROVED	RATODERO ~ RAJANPUR ROAD (SECTION-V) (ROJHAN TO RAJANPUR)	PLAN & PROFILE KM: 220+850 ~ KM: 221+550 SCALE: 1:2000	
				DRAWN SUBMITTED RECOMMENDED CHD./VER. APPROVED		DATE MARCH 2020		DWG NO. 3905/102/TD/P&P318	



Station	Design Level	Ground Level
221+550	92.036	91.753
221+600	92.030	92.013
221+650	92.023	92.001
221+700	92.017	91.930
221+750	92.010	91.953
221+800	92.004	91.929
221+850	91.997	91.905
221+900	91.991	91.862
221+950	91.984	91.834
222+000	91.977	91.829
222+050	91.971	91.935
222+100	91.964	91.915
222+150	91.958	91.908
222+200	91.951	91.881
222+250	91.945	91.755
	91.938	91.788
	91.932	91.801
	91.925	91.815
	91.918	91.828
	91.912	91.838
	91.905	91.814
	91.899	91.788
	91.892	91.788
	91.886	91.787
	91.880	91.787
	91.875	91.809
	91.873	91.795
	91.871	91.706
	91.870	91.690
	91.870	91.711
	91.870	91.731
	91.873	91.743
	91.876	91.748
	91.880	91.753
	91.886	91.753



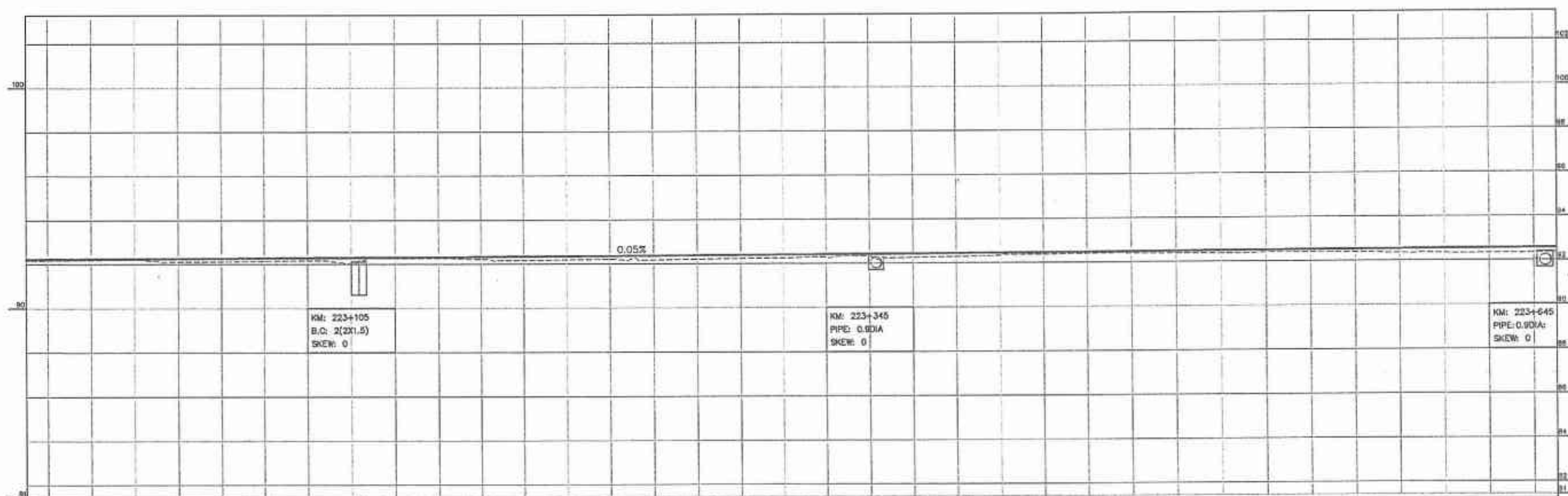
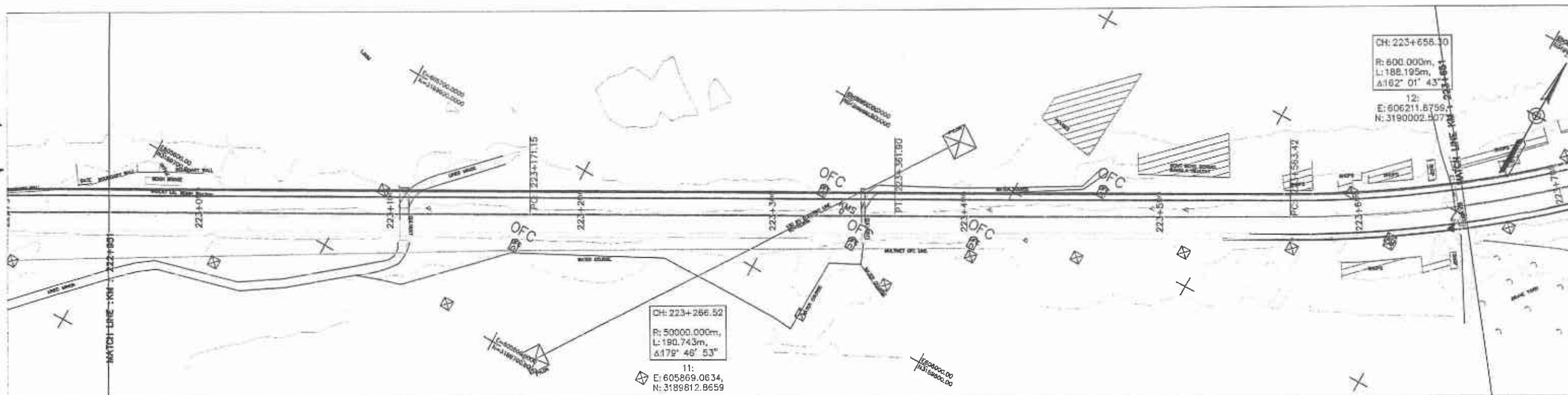
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2020 MAR 10 PM 10:00



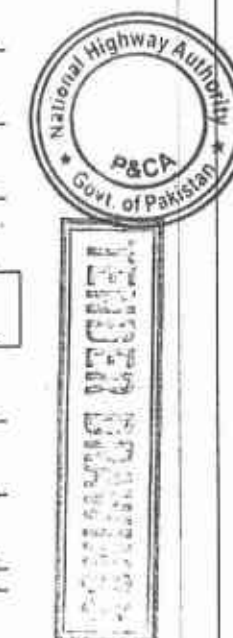
Horizontal Distances															TANGENT 2530.71																				
Super-elevation																																			
Design Levels	91.892	91.900	91.909	91.918	91.928	91.938	91.948	91.958	91.968	91.977	91.987	91.997	92.007	92.017	92.026	92.036	92.046	92.056	92.066	92.075	92.085	92.095	92.105	92.115	92.124	92.134	92.144	92.154	92.164	92.174	92.183	92.193	92.203	92.213	92.223
Ground Levels	91.702	91.770	91.809	91.848	91.864	91.795	91.848	91.856	91.866	91.879	91.887	91.896	91.889	91.892	91.897	91.904	91.908	91.905	91.912	91.886	91.920	91.932	91.942	91.944	91.946	91.965	92.040	92.046	91.975	91.973	91.996	92.007	92.017	92.122	92.164
Chainage	222+250	222+300					222+400					222+500				222+600					222+700					222+800					222+900			222+950	

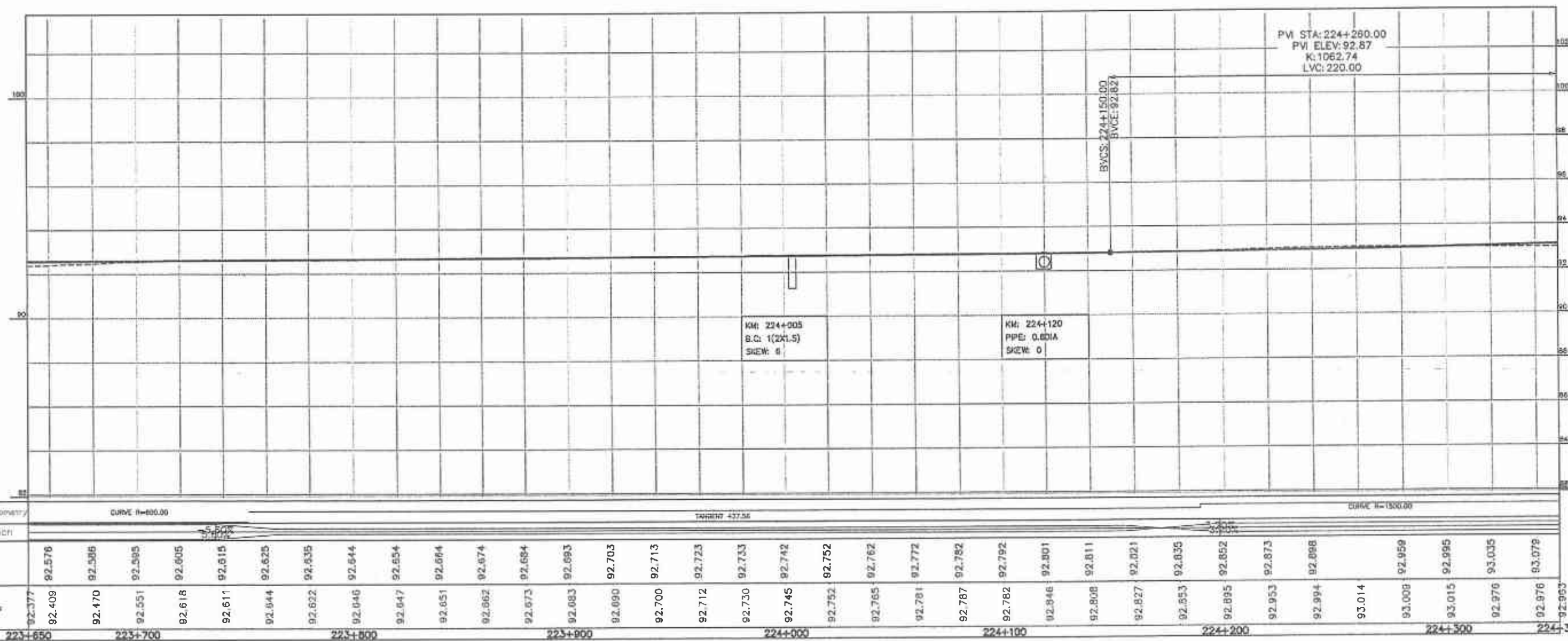
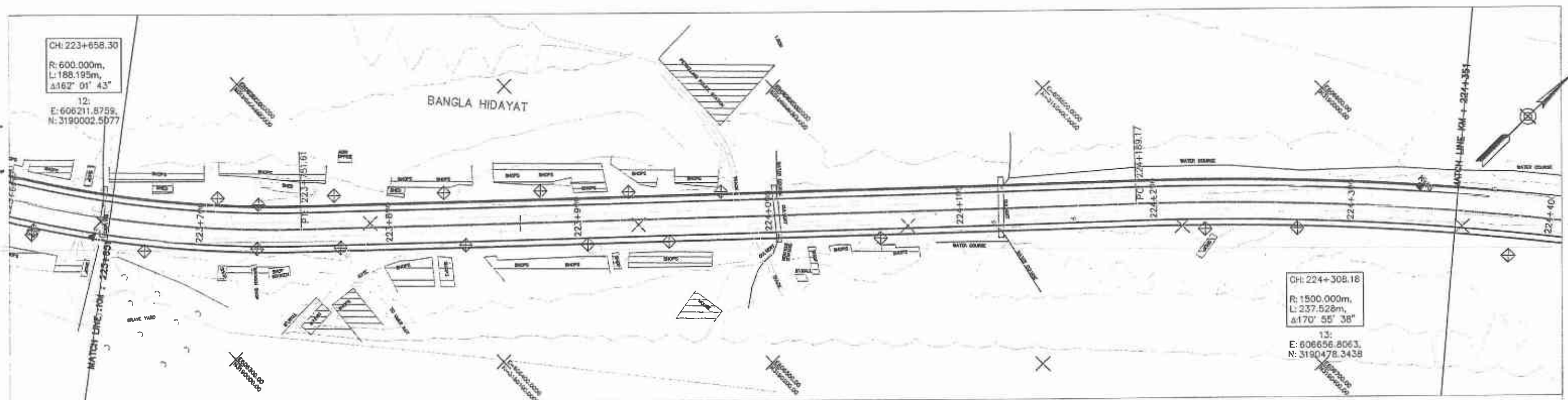


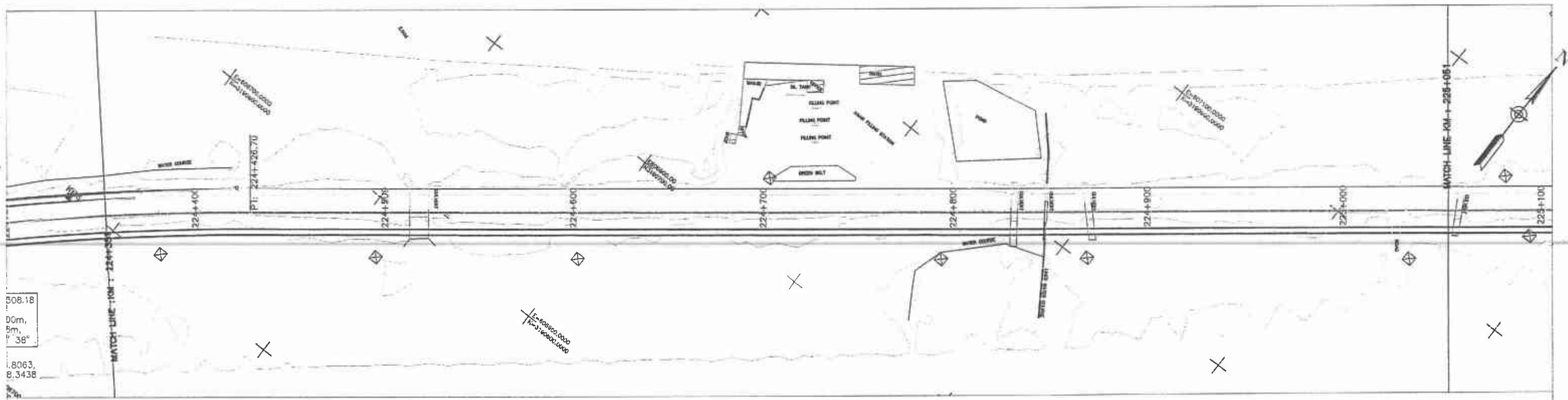
NATIONAL HIGHWAY AUTHORITY
 P&CA
 Govt. of Pakistan



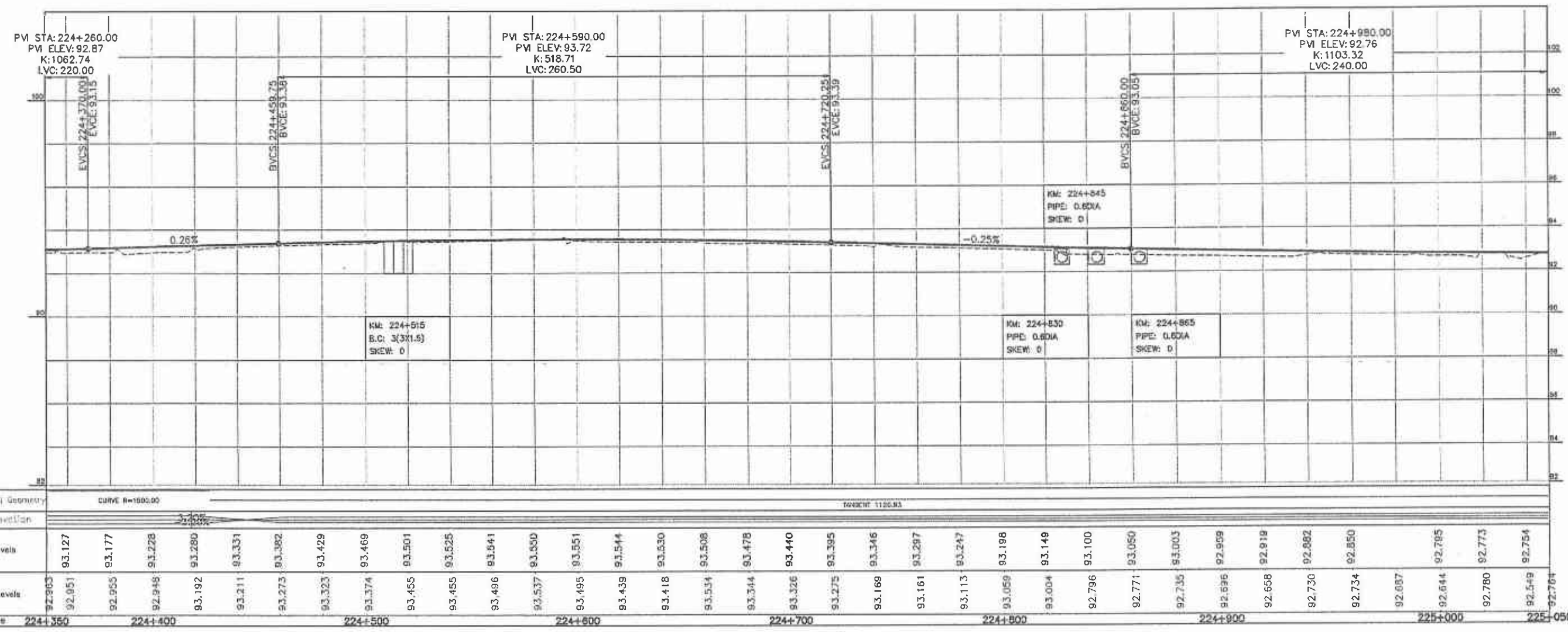
Horizontal Geometry	TANGENT 223+71																CURVE R=6000.00																TANGENT 201.32																CURVE R=600.00															
Superelevation																																																																
Design Levels	92.232	92.242	92.252	92.262	92.272	92.281	92.291	92.301	92.311	92.321	92.330	92.340	92.350	92.360	92.370	92.380	92.389	92.399	92.409	92.419	92.429	92.438	92.448	92.458	92.468	92.478	92.487	92.497	92.507	92.517	92.527	92.538	92.546	92.556	92.566																													
Ground Levels	92.175	92.183	92.198	92.211	92.112	92.132	92.148	92.164	92.016	92.274	92.275	92.225	92.171	92.190	92.210	92.179	92.207	92.232	92.251	92.297	92.328	92.257	92.289	92.336	92.375	92.396	92.390	92.395	92.375	92.395	92.388	92.379	92.352	92.347	92.339	92.346																												
Chainage	222+950	223+000					223+100					223+200					223+300					223+400					223+500					223+600					223+650																											







508.18
00m,
5m,
38"



DESIGNED BY
P&CA

Horizontal Geometry	CURVE R=1800.00																				TANGENT 1120.83																
Superelevation	2.5%																																				
Design Levels	93.127	93.177	93.228	93.280	93.331	93.382	93.429	93.469	93.501	93.525	93.541	93.550	93.551	93.544	93.530	93.508	93.478	93.440	93.395	93.346	93.297	93.247	93.198	93.149	93.100	93.050	93.003	92.909	92.819	92.785	92.773	92.754					
Ground Levels	92.963	92.951	92.955	92.948	93.192	93.211	93.273	93.323	93.374	93.455	93.455	93.496	93.537	93.495	93.439	93.418	93.514	93.344	93.326	93.275	93.169	93.161	93.113	93.059	93.004	92.796	92.771	92.735	92.696	92.658	92.730	92.734	92.687	92.644	92.780	92.549	92.761
Chamotte	224+350	224+400			224+500			224+600			224+700			224+800			224+900			224+900			225+000			225+050											

GOVERNMENT OF PAKISTAN
MINISTRY OF COMMUNICATIONS
NATIONAL HIGHWAY AUTHORITY

NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD.

REV.	DATE	DESCRIPTION	APPROVED

DRAWN
SUBMITTED
RECOMMENDED
CHD./VER.
APPROVED

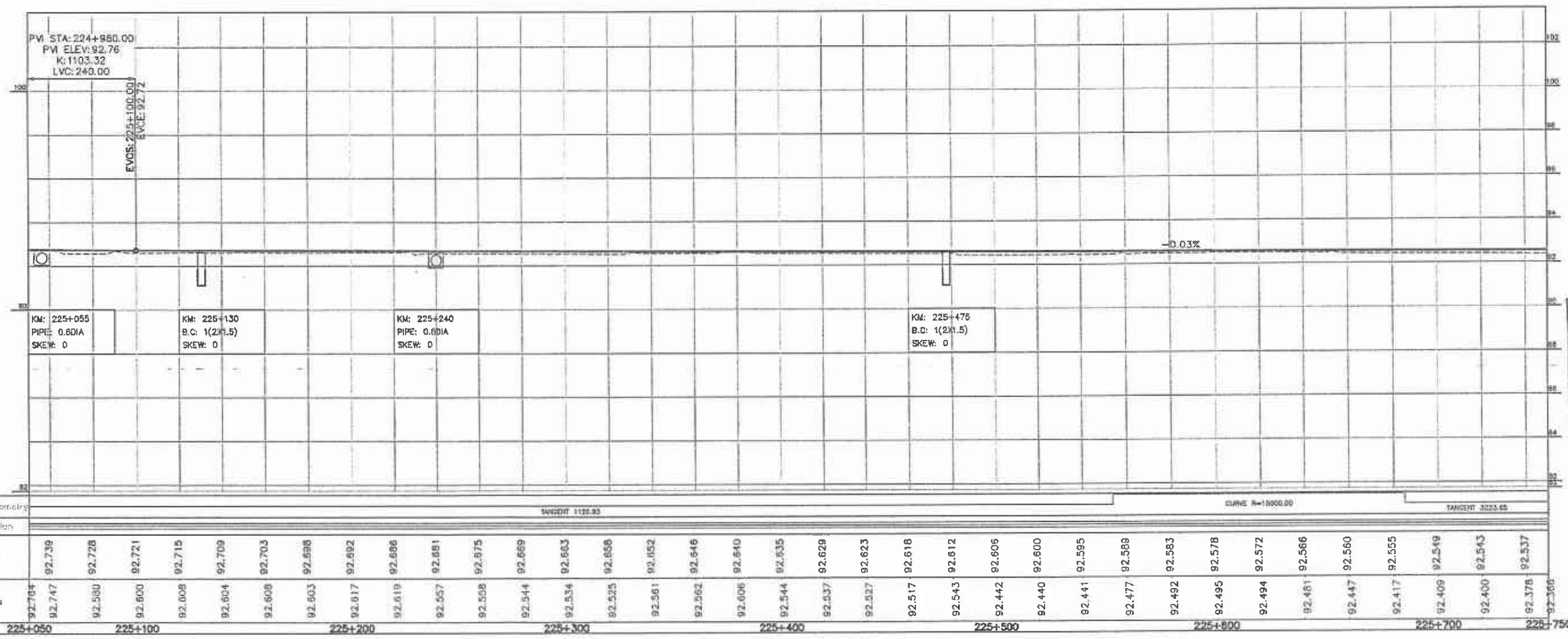
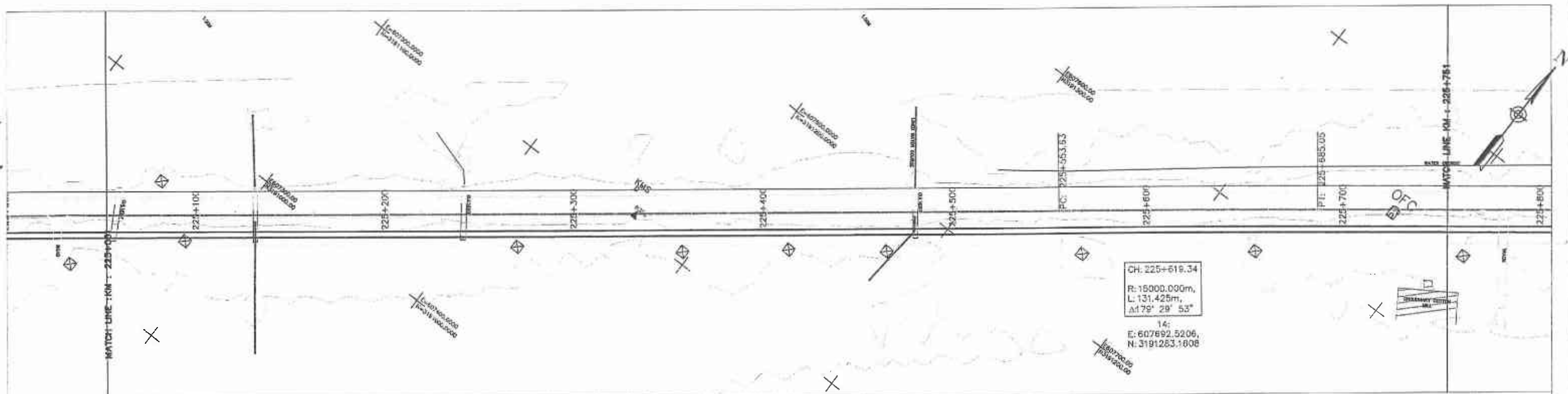
RATODERO ~ RAJANPUR ROAD
(SECTION-V)
(ROJHAN TO RAJANPUR)

PLAN & PROFILE
KM: 224+350 ~ KM: 225+050

DATE: MARCH 2020

SCALE
1:2000

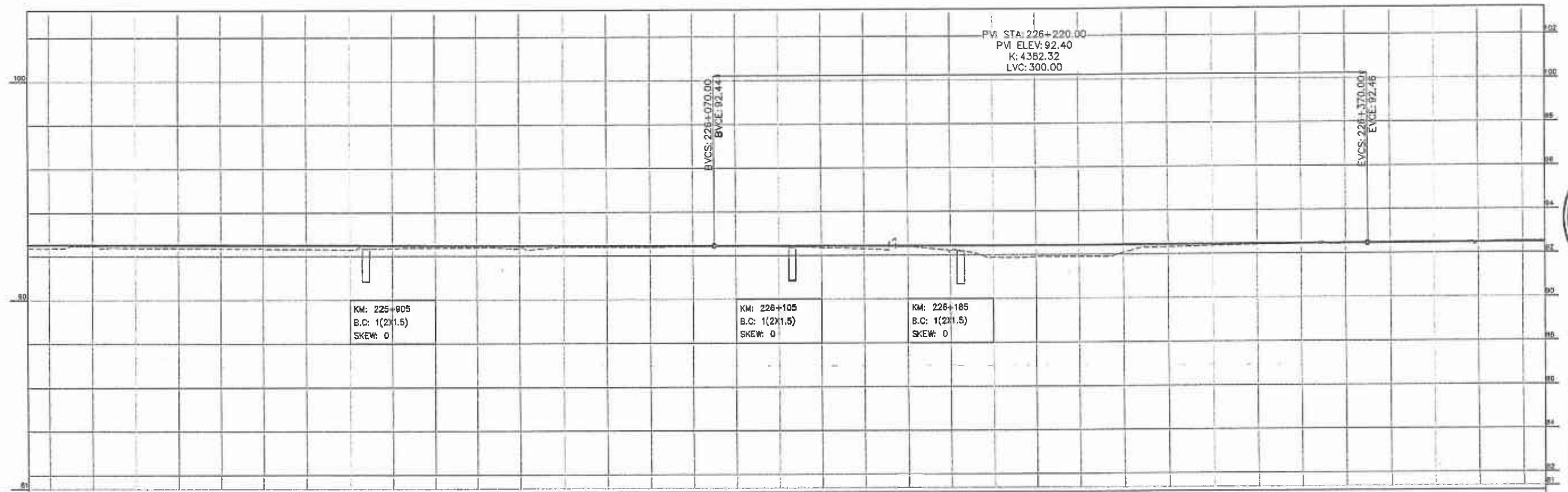
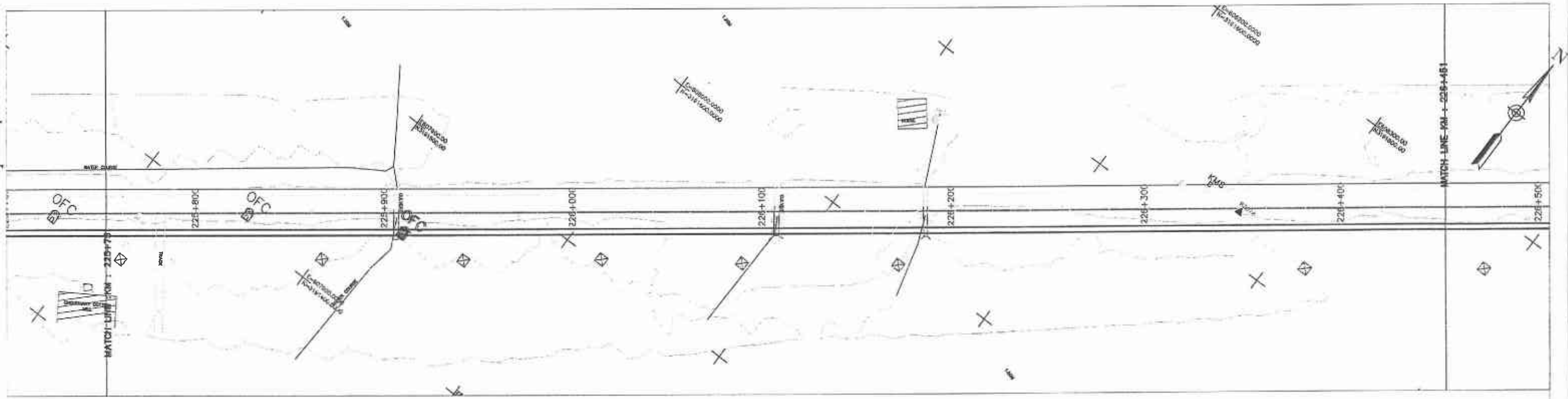
DWG NO.
3905/102/TD/P&P323



REVISIONS

Horizontal Geometry	TANGENT 1120.93																				CURVE R=15000.00		TANGENT 3223.65													
Superelevation																																				
Design levels	92.739	92.728	92.721	92.715	92.709	92.703	92.698	92.692	92.686	92.681	92.675	92.669	92.663	92.658	92.652	92.646	92.640	92.635	92.629	92.623	92.618	92.612	92.606	92.600	92.595	92.589	92.583	92.578	92.572	92.566	92.560	92.555	92.549	92.543	92.537	
Ground Levels	92.784	92.747	92.580	92.600	92.608	92.604	92.608	92.603	92.617	92.619	92.657	92.658	92.614	92.634	92.625	92.561	92.562	92.606	92.544	92.637	92.637	92.517	92.543	92.442	92.440	92.441	92.477	92.492	92.495	92.494	92.461	92.447	92.417	92.409	92.400	92.378
Chainage	225+050	225+100	225+150	225+200	225+250	225+300	225+350	225+400	225+450	225+500	225+550	225+600	225+650	225+700	225+750																					

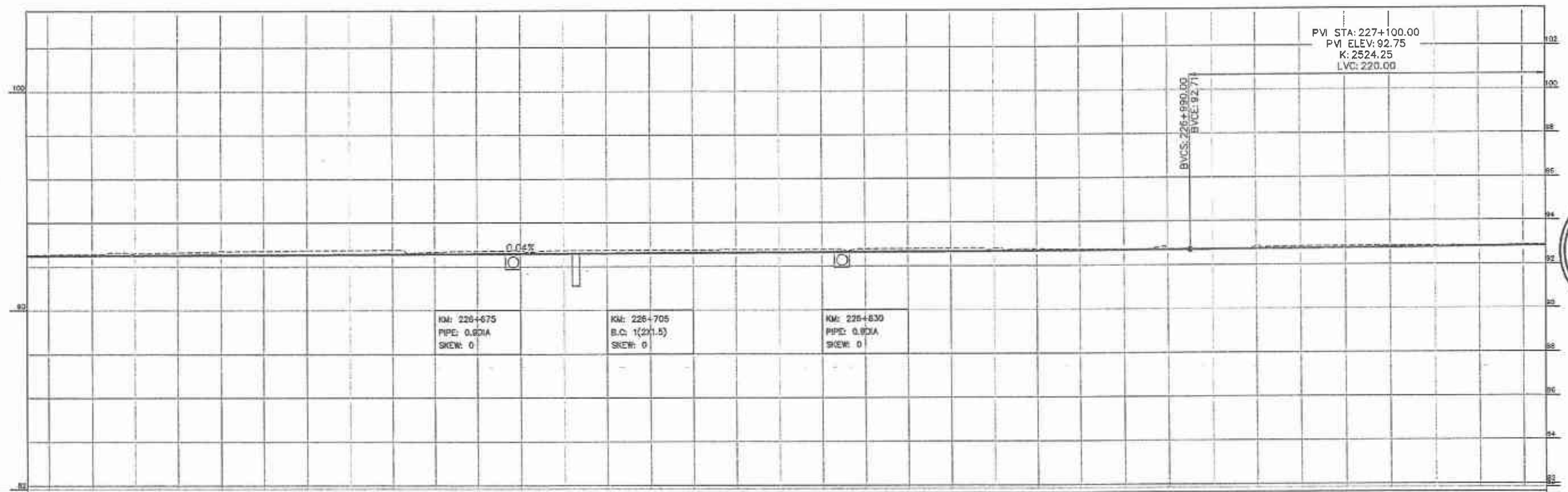
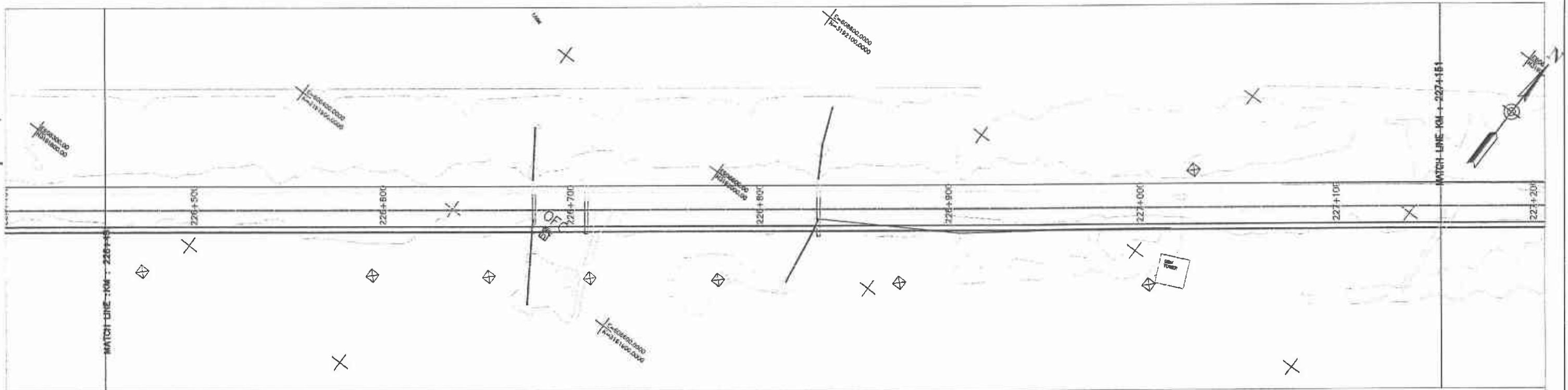
REV.	DATE	DESCRIPTION	APPROVED	APPROVED



Horizontal Geometry	TANGENT 3223.68																			
Superelevation																				
Design Levels	92.532	92.526	92.520	92.515	92.509	92.503	92.497	92.492	92.486	92.480	92.474	92.469	92.463	92.457	92.452	92.446	92.440	92.435	92.431	92.428
Ground Levels	92.366	92.371	92.476	92.392	92.377	92.360	92.349	92.322	92.303	92.360	92.382	92.390	92.344	92.392	92.364	92.405	92.428	92.415	92.359	92.294
Chainage	225+750	225+800	225+850	225+900	225+950	226+000	226+050	226+100	226+150	226+200	226+250	226+300	226+350	226+400	226+450	226+500	226+550	226+600	226+650	226+700



3905/102/TD/P&P325



PVI STA: 227+100.00
PVI ELEV: 92.75
K: 2524.25
LVC: 220.00

BVCS: 226+890.00
BVCE: 92.71

KM: 226+675
PIPE: 0.60 DIA
SKEW: 0

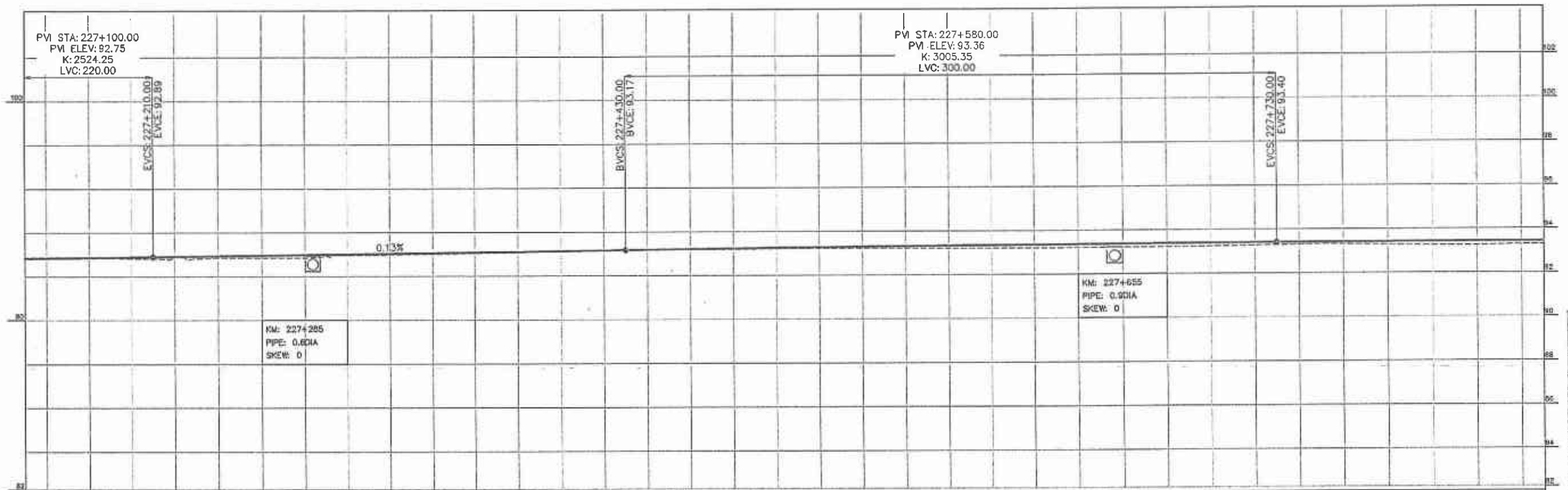
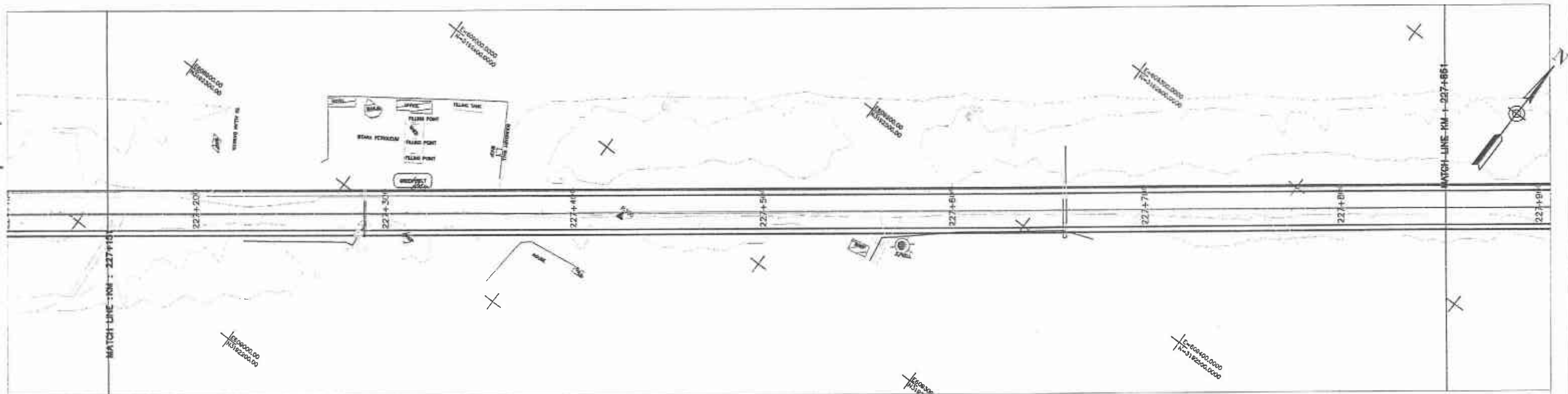
KM: 226+705
B.C. 1(2x1.5)
SKEW: 0

KM: 226+830
PIPE: 0.60 DIA
SKEW: 0

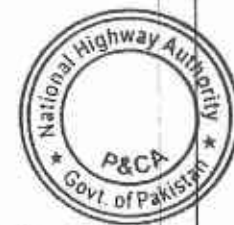
Horizontal Geometry	TANGENT 3223.85																			
Superelevation																				
Design Levels	92.496	92.504	92.512	92.519	92.527	92.535	92.543	92.551	92.559	92.567	92.575	92.583	92.591	92.599	92.607	92.615	92.623	92.631	92.639	92.647
Ground Levels	92.532	92.546	92.575	92.613	92.643	92.706	92.705	92.733	92.740	92.748	92.661	92.700	92.712	92.730	92.740	92.750	92.747	92.765	92.765	92.771
Chainage	226+450	226+500	226+550	226+600	226+650	226+700	226+750	226+800	226+850	226+900	226+950	227+000	227+050	227+100	227+150					



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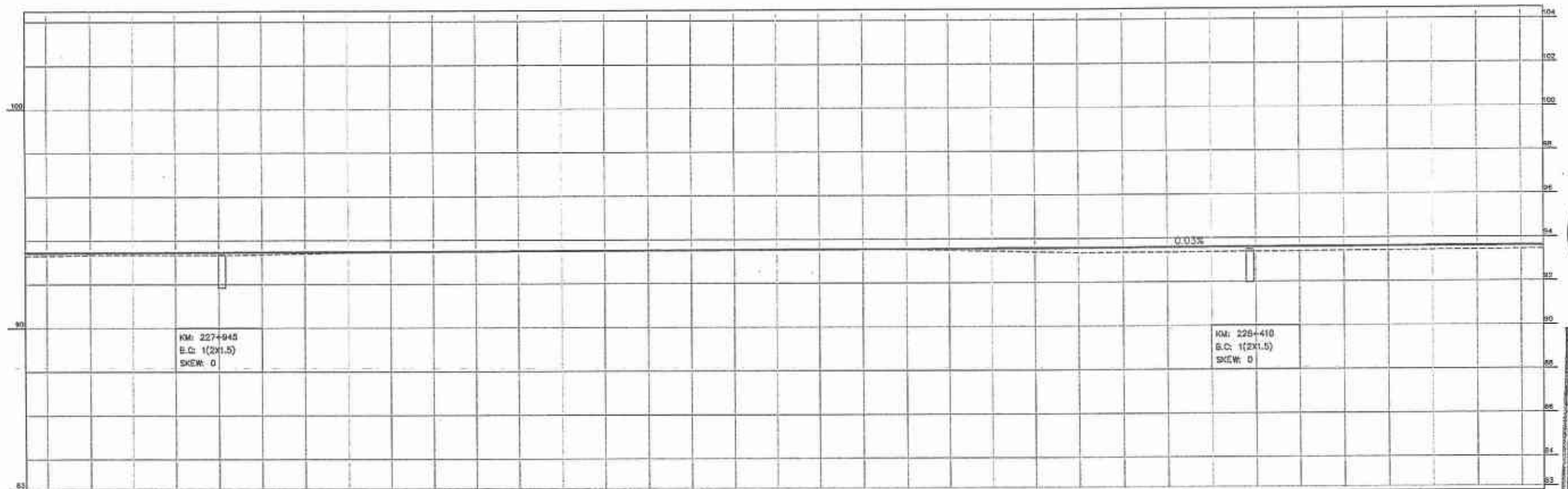
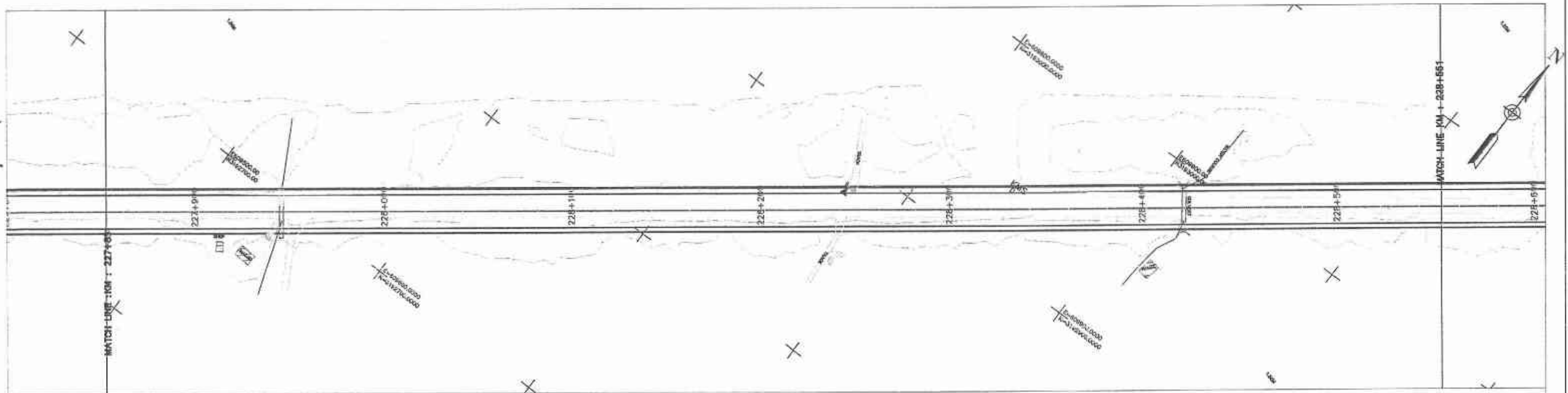


Horizontal Geometry	TANGENT 2833.85																			
Superelevation																				
Design Levels	92.832	92.854	92.878	92.903	92.928	92.954	92.979	93.004	93.030	93.055	93.081	93.106	93.131	93.157	93.182	93.208	93.229	93.250	93.270	93.289
Ground Levels	92.862	92.865	92.866	92.819	92.882	92.842	92.843	92.960	92.983	93.012	93.040	93.078	93.121	93.151	93.165	93.179	93.193	93.207	93.211	93.206
Change	227+150	227+200				227+300						227+400					227+500			227+600
																				227+700
																				227+800
																				227+850

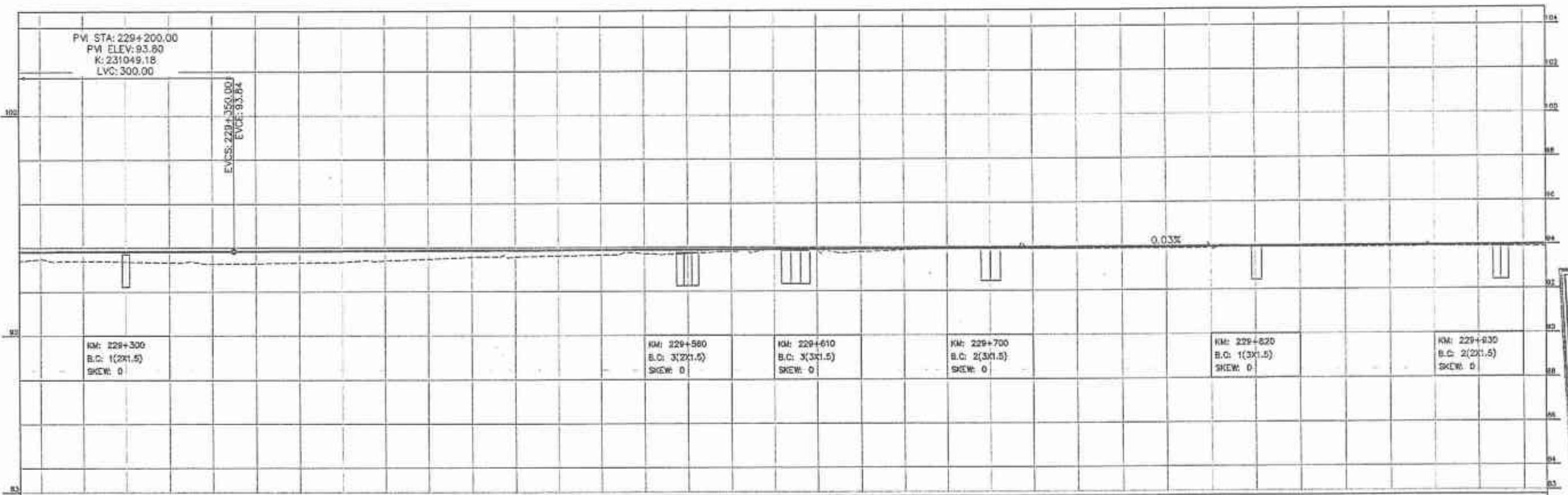
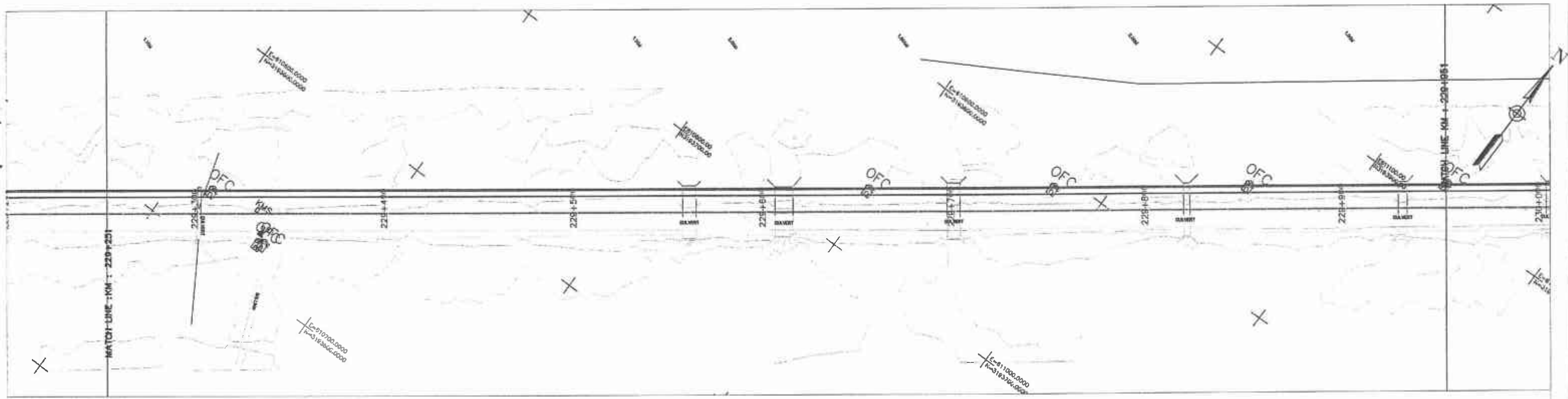


3905/102/P&P327
 2020/03/20

GOVERNMENT OF PAKISTAN MINISTRY OF COMMUNICATIONS NATIONAL HIGHWAY AUTHORITY	NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD.	REV.	DATE	DESCRIPTION	APPROVED	DRAWN	SUBMITTED	RECOMMENDED	CHD./VER.	APPROVED	RATODERO ~ RAJANPUR ROAD (SECTION-V) (ROJHAN TO RAJANPUR)	PLAN & PROFILE KM: 227+150 ~ KM: 227+850		SCALE
		MARCH 2020		3905/102/P&P327		1:2000								



Horizontal Geometry		Tangent 2223.65	
Superelevation			
Design Levels			
93.436	93.441	93.447	93.452
93.305	93.334	93.337	93.332
93.328	93.355	93.394	93.433
93.463	93.469	93.474	93.480
93.485	93.474	93.490	93.496
93.501	93.499	93.507	93.512
93.523	93.520	93.518	93.523
93.528	93.537	93.534	93.539
93.545	93.532	93.545	93.550
93.550	93.537	93.556	93.561
93.561	93.521	93.566	93.572
93.566	93.478	93.577	93.583
93.572	93.436	93.583	93.588
93.583	93.393	93.594	93.599
93.588	93.350	93.604	93.604
93.594	93.349	93.610	93.615
93.599	93.355	93.615	93.621
93.604	93.362	93.621	93.626
93.609	93.369	93.626	93.631
93.614	93.382	93.631	93.636
93.619	93.395	93.636	93.641
93.624	93.406	93.641	93.646
93.629	93.417	93.646	93.651
93.634	93.428	93.651	93.656
93.639	93.442	93.656	93.661
93.644	93.450	93.661	93.666
93.649	93.460	93.666	93.671
93.654	93.471	93.671	93.676
93.659	93.481	93.676	93.681
93.664	93.492	93.681	93.686
93.669	93.502	93.686	93.691
93.674	93.512	93.691	93.696
93.679	93.523	93.696	93.701
93.684	93.533	93.701	93.706
93.689	93.544	93.706	93.711
93.694	93.554	93.711	93.716
93.699	93.564	93.716	93.721
93.704	93.574	93.721	93.726
93.709	93.584	93.726	93.731
93.714	93.594	93.731	93.736
93.719	93.604	93.736	93.741
93.724	93.614	93.741	93.746
93.729	93.624	93.746	93.751
93.734	93.634	93.751	93.756
93.739	93.644	93.756	93.761
93.744	93.654	93.761	93.766
93.749	93.664	93.766	93.771
93.754	93.674	93.771	93.776
93.759	93.684	93.776	93.781
93.764	93.694	93.781	93.786
93.769	93.704	93.786	93.791
93.774	93.714	93.791	93.796
93.779	93.724	93.796	93.801
93.784	93.734	93.801	93.806
93.789	93.744	93.806	93.811
93.794	93.754	93.811	93.816
93.799	93.764	93.816	93.821
93.804	93.774	93.821	93.826
93.809	93.784	93.826	93.831
93.814	93.794	93.831	93.836
93.819	93.804	93.836	93.841
93.824	93.814	93.841	93.846
93.829	93.824	93.846	93.851
93.834	93.834	93.851	93.856
93.839	93.844	93.856	93.861
93.844	93.854	93.861	93.866
93.849	93.864	93.866	93.871
93.854	93.874	93.871	93.876
93.859	93.884	93.876	93.881
93.864	93.894	93.881	93.886
93.869	93.904	93.886	93.891
93.874	93.914	93.891	93.896
93.879	93.924	93.896	93.901
93.884	93.934	93.901	93.906
93.889	93.944	93.906	93.911
93.894	93.954	93.911	93.916
93.899	93.964	93.916	93.921
93.904	93.974	93.921	93.926
93.909	93.984	93.926	93.931
93.914	93.994	93.931	93.936
93.919	94.004	93.936	93.941
93.924	94.014	93.941	93.946
93.929	94.024	93.946	93.951
93.934	94.034	93.951	93.956
93.939	94.044	93.956	93.961
93.944	94.054	93.961	93.966
93.949	94.064	93.966	93.971
93.954	94.074	93.971	93.976
93.959	94.084	93.976	93.981
93.964	94.094	93.981	93.986
93.969	94.104	93.986	93.991
93.974	94.114	93.991	93.996
93.979	94.124	93.996	94.001
93.984	94.134	94.001	94.006
93.989	94.144	94.006	94.011
93.994	94.154	94.011	94.016
93.999	94.164	94.016	94.021
94.004	94.174	94.021	94.026
94.009	94.184	94.026	94.031
94.014	94.194	94.031	94.036
94.019	94.204	94.036	94.041
94.024	94.214	94.041	94.046
94.029	94.224	94.046	94.051
94.034	94.234	94.051	94.056
94.039	94.244	94.056	94.061
94.044	94.254	94.061	94.066
94.049	94.264	94.066	94.071
94.054	94.274	94.071	94.076
94.059	94.284	94.076	94.081
94.064	94.294	94.081	94.086
94.069	94.304	94.086	94.091
94.074	94.314	94.091	94.096
94.079	94.324	94.096	94.101
94.084	94.334	94.101	94.106
94.089	94.344	94.106	94.111
94.094	94.354	94.111	94.116
94.099	94.364	94.116	94.121
94.104	94.374	94.121	94.126
94.109	94.384	94.126	94.131
94.114	94.394	94.131	94.136
94.119	94.404	94.136	94.141
94.124	94.414	94.141	94.146
94.129	94.424	94.146	94.151
94.134	94.434	94.151	94.156
94.139	94.444	94.156	94.161
94.144	94.454	94.161	94.166
94.149	94.464	94.166	94.171
94.154	94.474	94.171	94.176
94.159	94.484	94.176	94.181
94.164	94.494	94.181	94.186
94.169	94.504	94.186	94.191
94.174	94.514	94.191	94.196
94.179	94.524	94.196	94.201
94.184	94.534	94.201	94.206
94.189	94.544	94.206	94.211
94.194	94.554	94.211	94.216
94.199	94.564	94.216	94.221
94.204	94.574	94.221	94.226
94.209	94.584	94.226	94.231
94.214	94.594	94.231	94.236
94.219	94.604	94.236	94.241
94.224	94.614	94.241	94.246
94.229	94.624	94.246	94.251
94.234	94.634	94.251	94.256
94.239	94.644	94.256	94.261
94.244	94.654	94.261	94.266
94.249	94.664	94.266	94.271
94.254	94.674	94.271	94.276
94.259	94.684	94.276	94.281
94.264	94.694	94.281	94.286
94.269	94.704	94.286	94.291
94.274	94.714	94.291	94.296
94.279	94.724	94.296	94.301
94.284	94.734	94.301	94.306
94.289	94.744	94.306	94.311
94.294	94.754	94.311	94.316
94.299	94.764	94.316	94.321
94.304	94.774	94.321	94.326
94.309	94.784	94.326	94.331
94.314	94.794	94.331	94.336
94.319	94.804	94.336	94.341
94.324	94.814	94.341	94.346
94.329	94.824	94.346	94.351
94.334	94.834	94.351	94.356
94.339	94.844	94.356	94.361
94.344	94.854	94.361	94.366
94.349	94.864	94.366	94.371
94.354	94.874	94.371	94.376
94.359	94.884	94.376	94.381
94.364	94.894	94.381	94.386
94.369	94.904	94.386	94.391
94.374	94.914	94.391	94.396
94.379	94.924	94.396	94.401
94.384	94.934	94.401	94.406
94.389	94.944	94.406	94.411
94.394	94.954	94.411	94.416
94.399	94.964	94.416	94.421
94.404	94.974	94.421	94.426
94.409	94.984	94.426	94.431
94.414	94.994	94.431	94.436
94.419	95.004	94.436	94.441
94.424	95.014	94.441	94.446
94.429	95.024	94.446	94.451
94.434	95.034	94.451	94.456
94.439	95.044	94.456	94.461
94.444	95.054	94.461	94.466
94.449	95.064	94.466	94.471
94.454	95.074	94.471	94.476
94.459	95.084	94.476	94.481
94.464	95.094	94.481	94.486
94.469	95.104	94.486	94.491
94.474	95.114	94.491	94.496
94.479	95.124	94.496	94.501
94.484	95.134	94.501	94.506
94.489	95.144	94.506	94.511
94.494	95.154	94.511	94.516
94.499	95.164	94.516	94.521
94.504	95.174	94.521	94.526
94.509	95.184	94.526	94.531
94.514	95.194	94.531	94.536
94.519	95.204	94.536	94.541
94.524	95.214	94.541	94.546
94.529	95.224	94.546	94.551
94.534	95.234	94.551	94.556
94.539	95.244	94.556	94.561
94.544	95.254	94.561	94.566
94.549	95.264	94.566	94.571
94.554	95.274	94.571	94.576
94.559	95.284	94.576	94.581
94.564	95.294	94.581	94.586
94.569	95.304	94.586	94.591
94.574	95.314	94.591	94.596
94.579	95.324	94.596	94.601
94.584	95.334	94.601	94.606
94.589	95.344	94.606	94.611
94.594	95.354	94.611	94.616
94.599	95.364	94.616	94.621
94.604	95.374	94.621	94.626
94.609	95.384	94.626	94.631
94.614	95.394	94.631	94.636
94.619	95.404	94.636	94.641
94.624	95.414	94.641	94.646
94.629	95.424	94.646	94.651
94.634	95.434	94.651	94.656
94.639	95.444	94.656	94.661
94.644	95.454	94.661	94.666
94.649	95.464	94.666	94.671
94.654	95.474	94.671	94.676
94.659	95.484	94.676	94.681
94.664	95.494	94.681	94.686
94.669	95.504	94.686	94.691
94.674	95.514	94.691	94.696
94.679	95.524	94.696	94.701
94.684	95.534	94.701	94.706
94.689	95.544	94.706	94.711
94.694	95.554	94.711	94.716
94.699	95.564	94.716	94.721
94.704	95.574	94.721	94.726
94.709	95.584	94.726	94.731
94.714	95.594	94.731	94.736
94.719	95.604	94.736	94.741
94.724	95.614	94.741	94.746
94.729	95.624	94.746	94.751
94.734	95.634	94.751	94.756
94.739	95.644	94.756	94.761
94.744	95.654	94.761	94.766
94.749	95.664	94.766	94.771
94.754	95.674		



Horizontal Curvature	TANGENT 3882.54																			
Superelevation																				
Design Levels	93.815	93.821	93.826	93.831	93.836	93.841	93.847	93.852	93.857	93.862	93.867	93.872	93.878	93.883	93.888	93.893	93.898	93.903	93.908	93.914
Ground Levels	93.402	93.480	93.404	93.367	93.332	93.265	93.290	93.316	93.347	93.408	93.484	93.560	93.571	93.620	93.652	93.717	93.717	93.809	93.941	93.877
Engineers	228+250	228+300	228+400	228+500	228+600	228+700	228+800	228+900	228+950											



3905/102/TD/P&P330

GOVERNMENT OF PAKISTAN
MINISTRY OF COMMUNICATIONS
NATIONAL HIGHWAY AUTHORITY

NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD.

PROJECT MANAGER
M/S KASPAK

DRAWN
SUBMITTED
RECOMMENDED
CHD/VER.

APPROVED

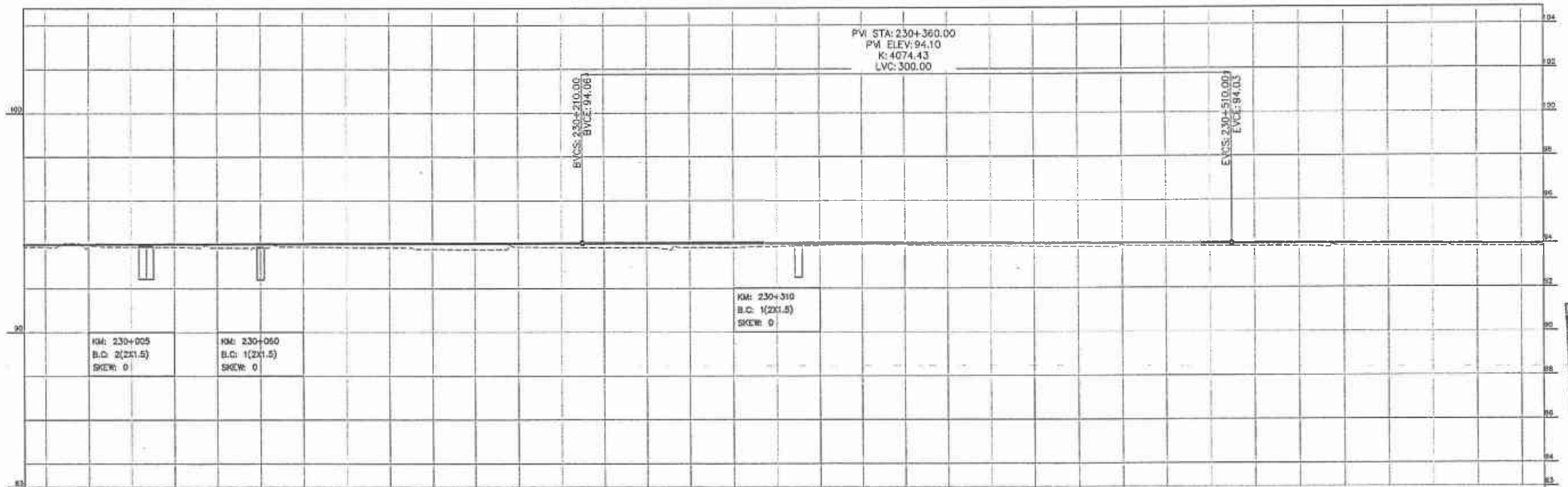
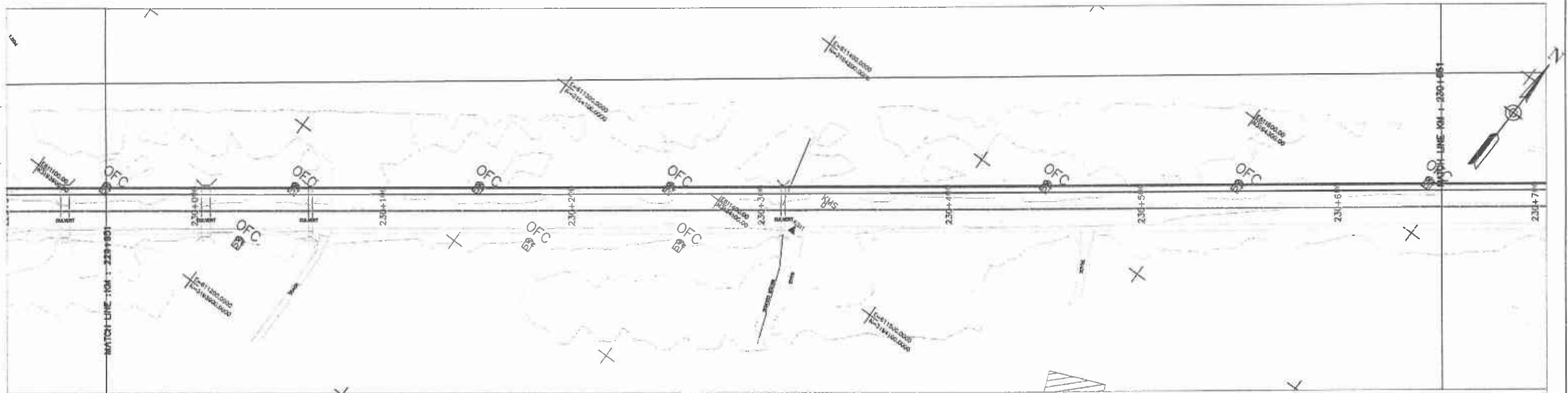
RATODERO ~ RAJANPUR ROAD
(SECTION-V)
(ROJHAN TO RAJANPUR)

PLAN & PROFILE
KM: 228+250 ~ KM: 229+950

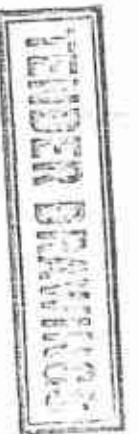
SCALE
1:2000

DATE
MARCH 2020

DWG NO.
3905/102/TD/P&P330



Horizontal Geometry	TANGENT 3692.54																			
Superelevation																				
Design Levels	93.997	94.002	94.007	94.012	94.017	94.022	94.028	94.033	94.038	94.043	94.048	94.053	94.059	94.064	94.068	94.071	94.073	94.075	94.074	94.070
Ground Levels	93.859	93.876	93.870	93.886	93.850	93.851	93.851	93.855	93.868	93.851	93.782	93.775	93.689	93.872	93.856	93.849	93.865	93.860	94.006	93.994
Chainage	229+950	230+000	230+100	230+200	230+300	230+400	230+500	230+600	230+650											



GOVERNMENT OF PAKISTAN
MINISTRY OF COMMUNICATIONS
NATIONAL HIGHWAY AUTHORITY

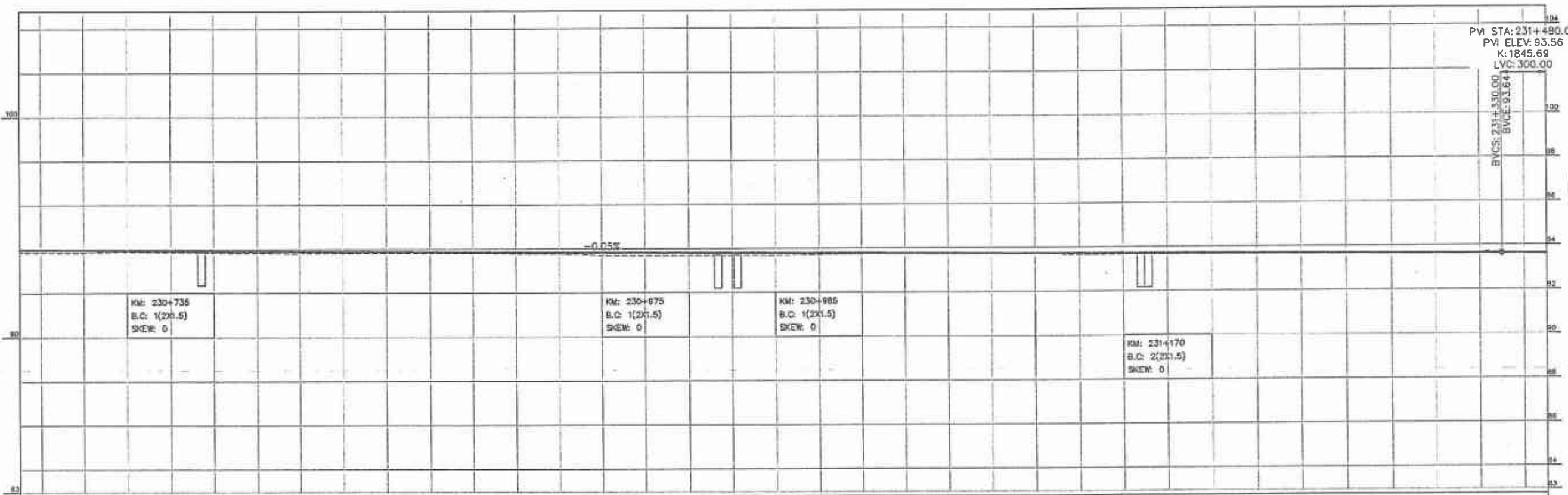
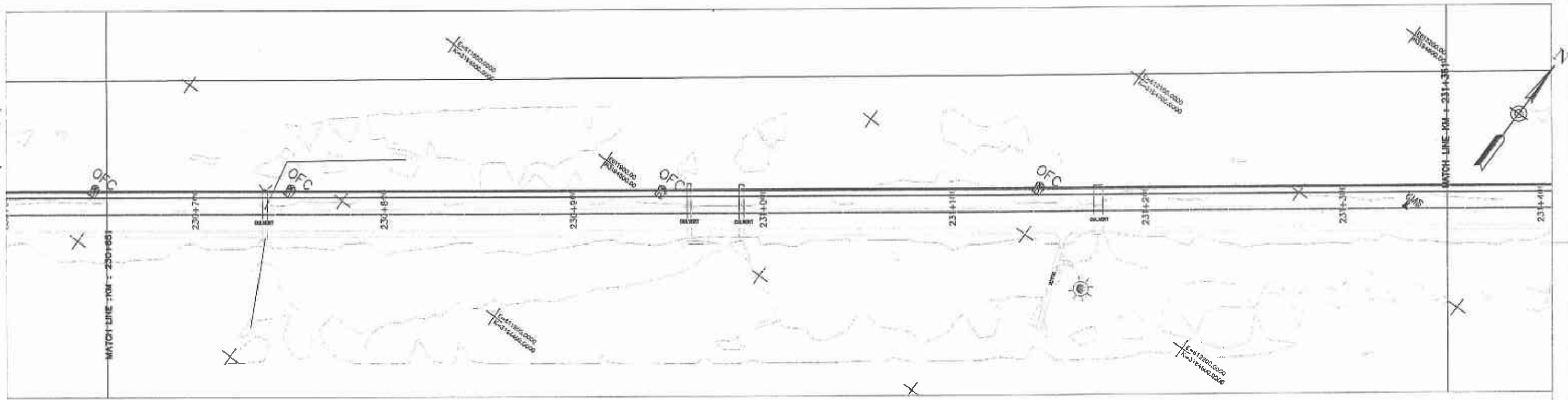


NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD.

REV.	DATE	DESCRIPTION	APPROVED	APPROVED

RATODERO ~ RAJANPUR ROAD
(SECTION-V)
(ROJHAN TO RAJANPUR)

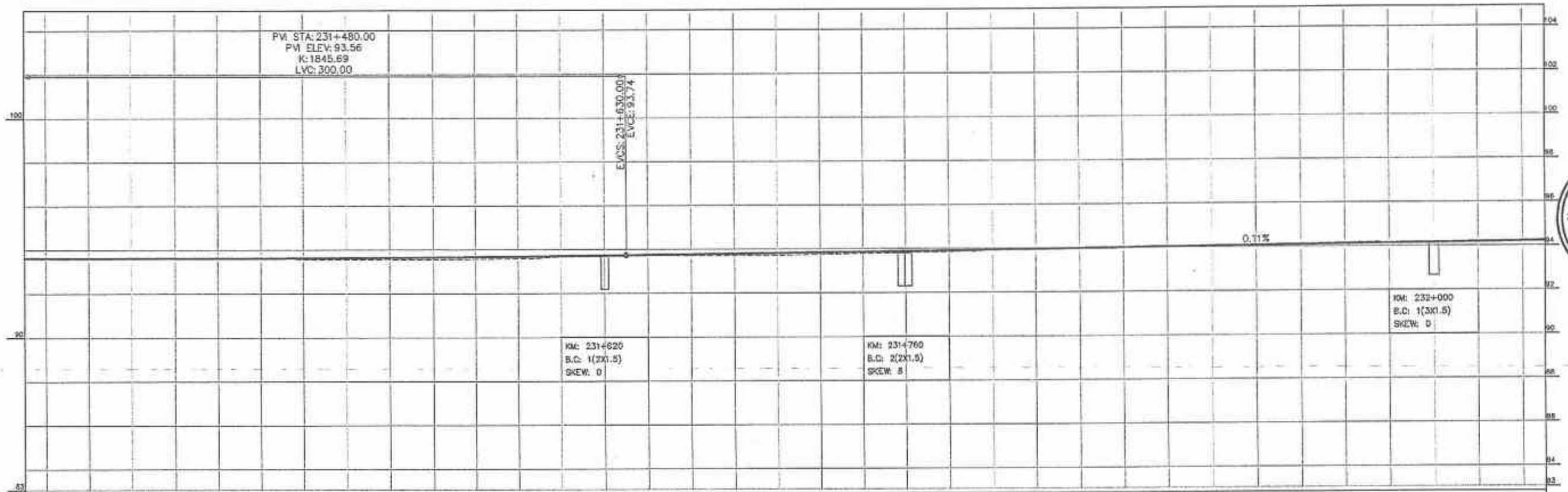
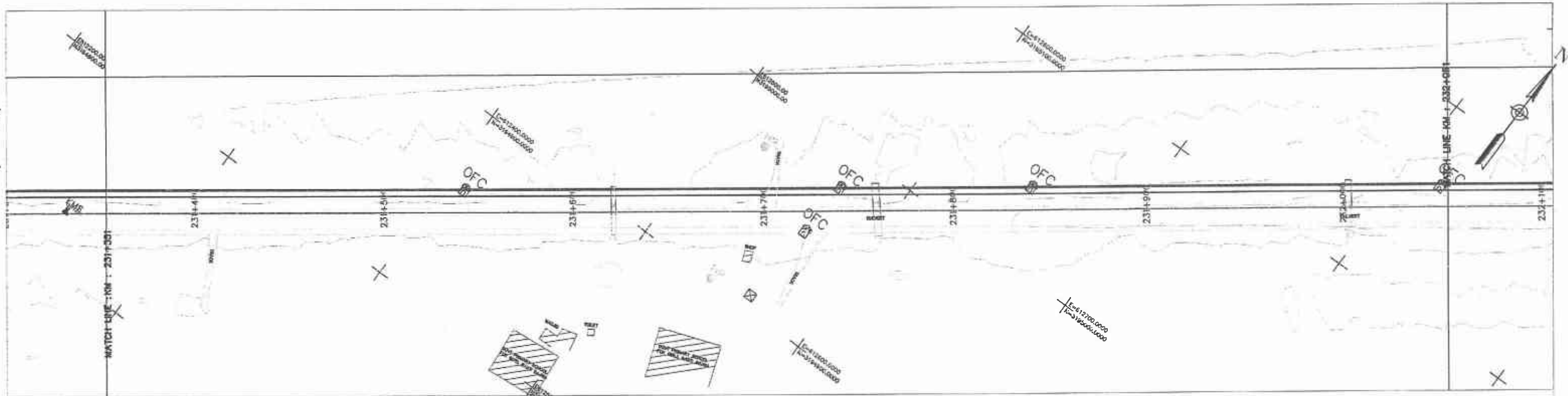
PLAN & PROFILE		SCALE
KM: 229+950 ~ KM: 230+650		1:2000
DATE	DWG NO.	
MARCH 2020	3805/102/TD/P&P331	



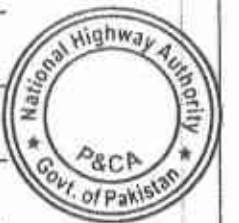
Horizontal Geometry	TANGENT 3092.94																			
Superelevation																				
Design Levels	93.957	93.947	93.936	93.928	93.918	93.909	93.899	93.890	93.880	93.871	93.861	93.852	93.842	93.832	93.823	93.813	93.804	93.794	93.785	93.775
Ground Levels	93.952	93.951	93.849	93.890	93.856	93.845	93.834	93.812	93.819	93.818	93.805	93.791	93.777	93.700	93.689	93.687	93.686	93.686	93.728	93.731
Chainage	230+650	230+700	230+800	230+900	231+000	231+100	231+200	231+300	231+350											



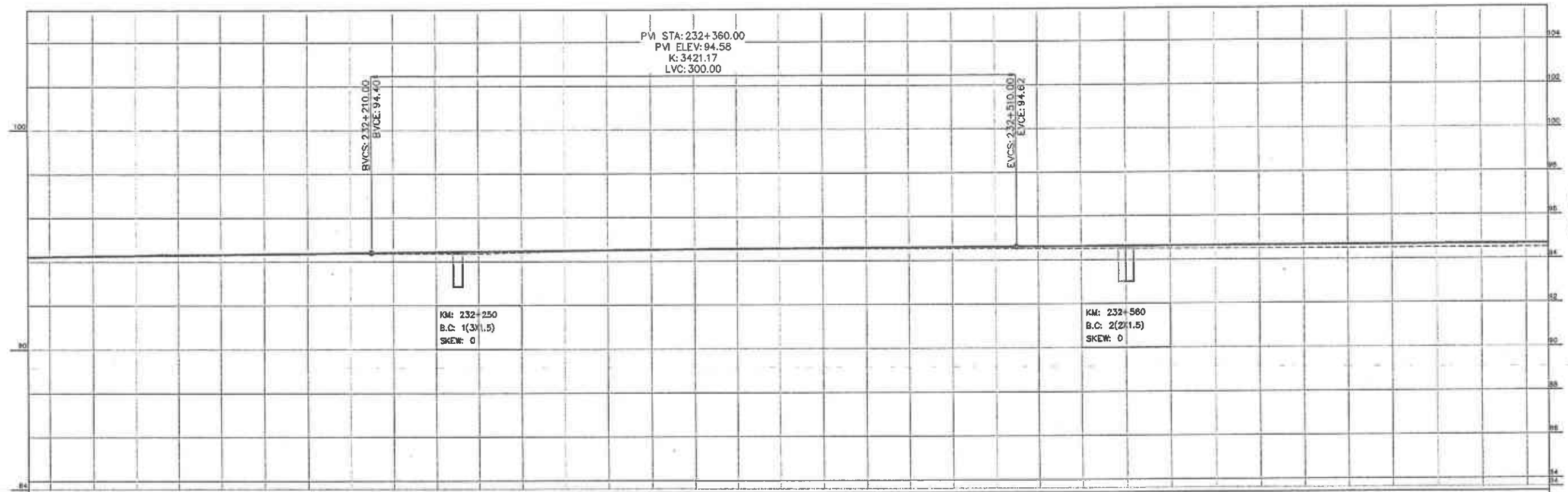
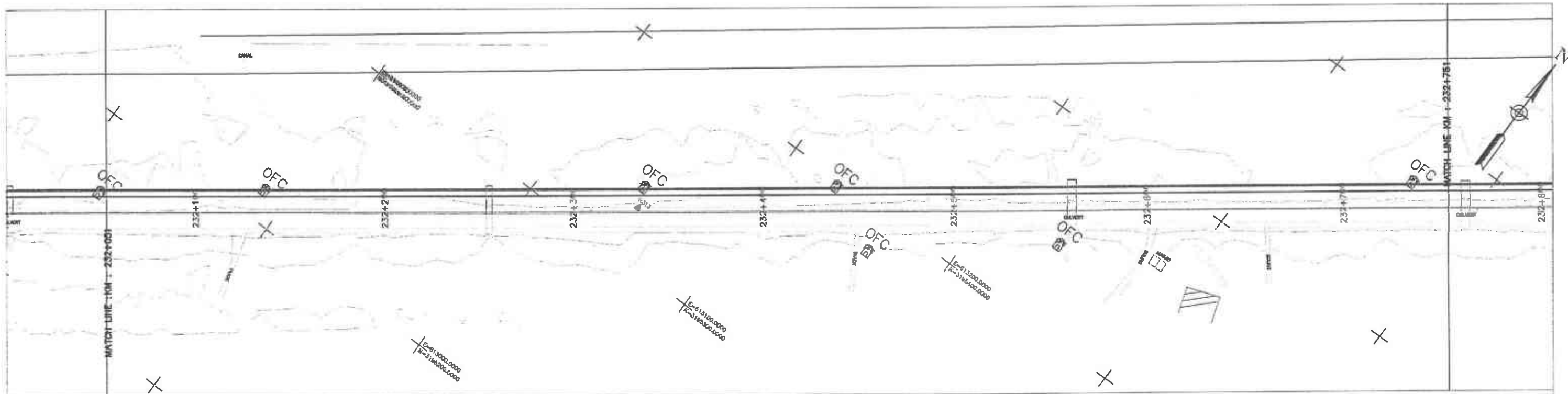
RECEIVED



Horizontal Geometry	Vertical Data																																		
Super-elevation																																			
Design levels	93.625	93.620	93.616	93.616	93.617	93.620	93.634	93.644	93.656	93.670	93.687	93.705	93.726	93.749	93.772	93.795	93.817	93.840	93.863	93.886	93.909	93.932	93.955	93.978	94.001	94.024	94.047	94.070	94.093	94.116	94.139	94.162	94.185	94.208	
Ground Levels	93.620	93.616	93.614	93.642	93.613	93.610	93.601	93.576	93.563	93.574	93.563	93.577	93.595	93.603	93.716	93.712	93.728	93.717	93.751	93.785	93.819	93.853	93.943	93.970	93.997	94.024	94.027	94.061	94.090	94.119	94.148	94.148	94.136	94.155	94.162
Chainage	231+350	231+400		231+500			231+600			231+700			231+800			231+900			231+900			231+900			231+900			232+000			232+050				



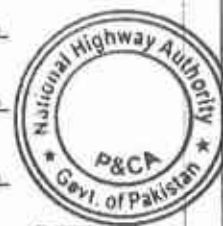
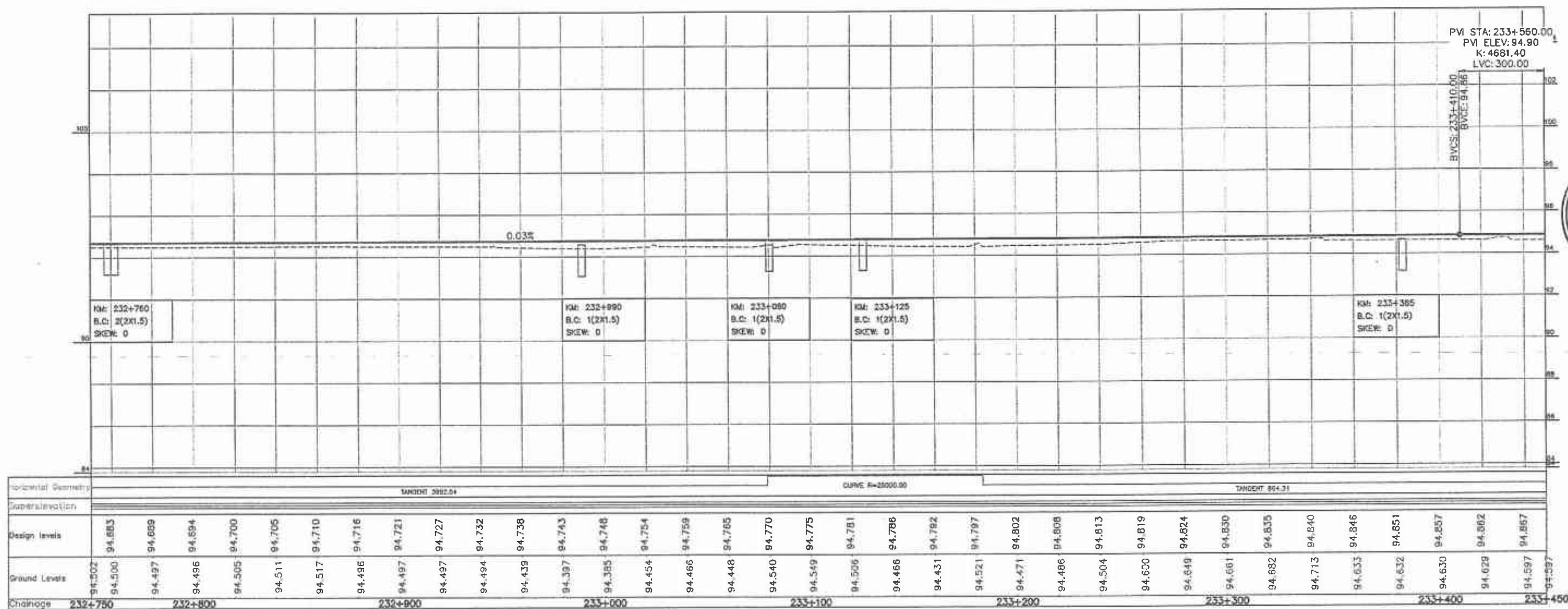
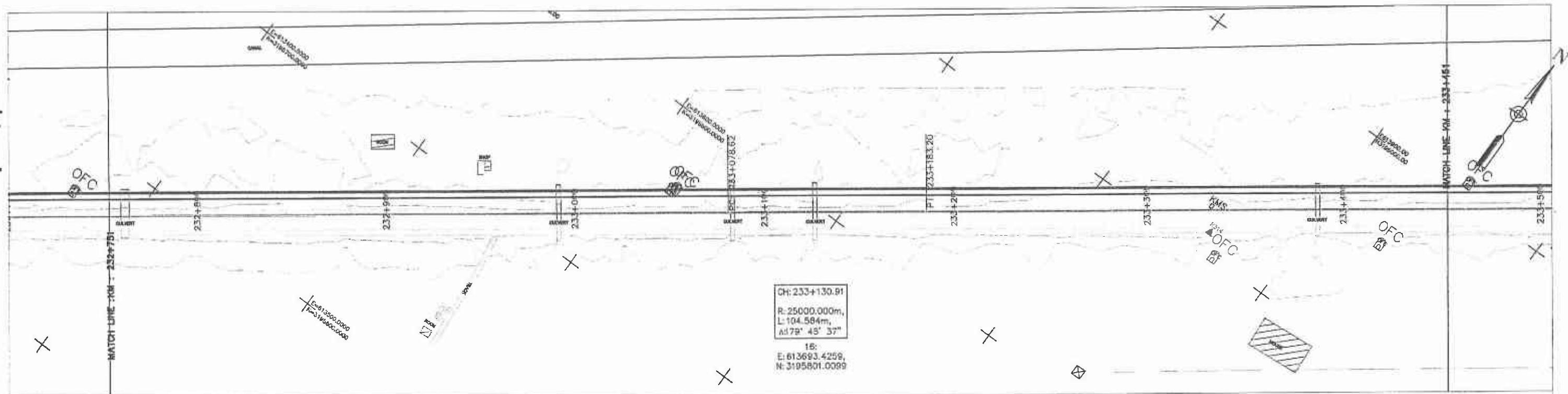
SECTION-V
SECTION-V



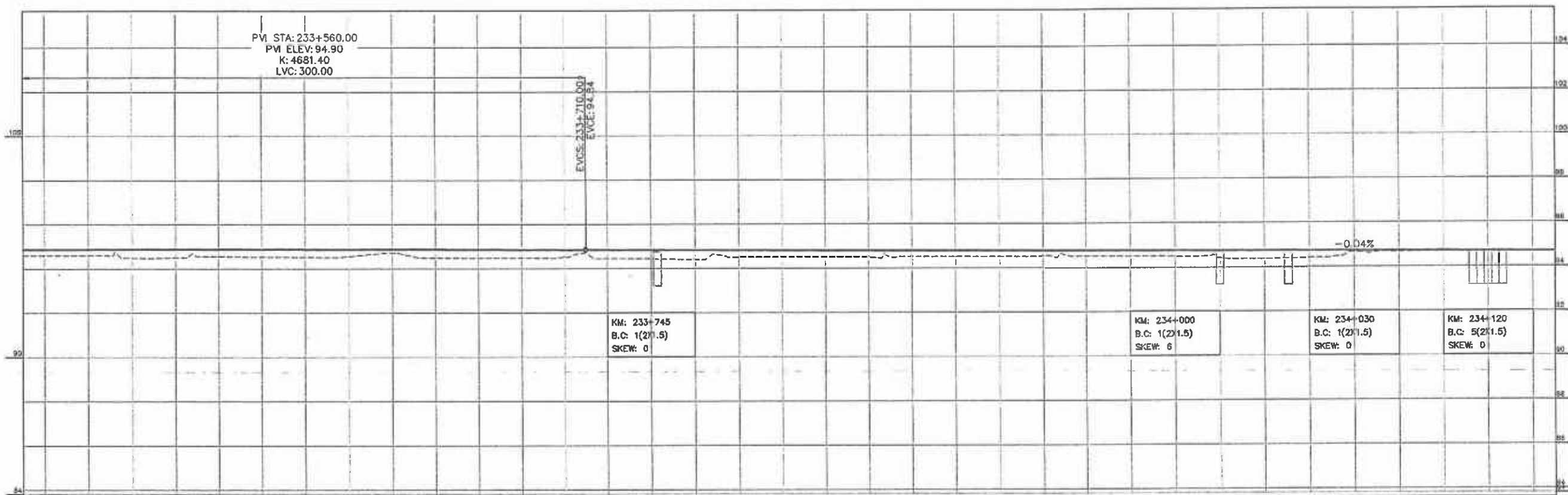
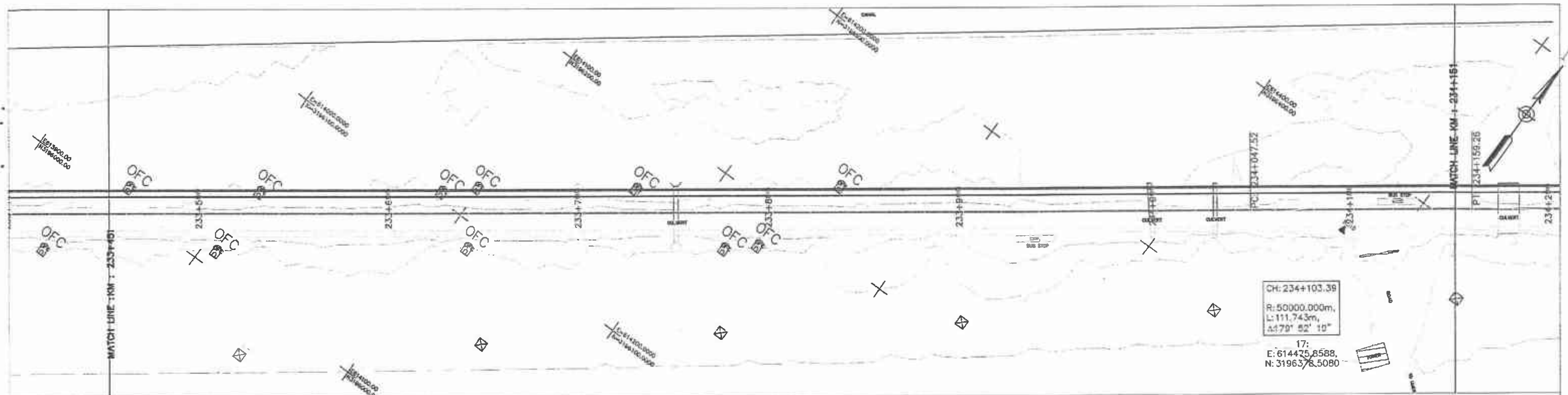
Horizontal Description	TANGENT 3982.94																			
Super Elevation																				
Design Levels	94.231	94.254	94.277	94.300	94.322	94.345	94.368	94.391	94.414	94.436	94.457	94.476	94.494	94.511	94.527	94.556	94.568	94.579	94.590	94.598
Ground Levels	94.202	94.221	94.261	94.300	94.332	94.341	94.350	94.360	94.371	94.366	94.360	94.362	94.415	94.468	94.514	94.528	94.533	94.537	94.538	94.536
Chainage	232+050	232+100	232+200	232+300	232+400	232+500	232+600	232+700	232+750											



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 SUBMITTED
 RECOMMENDED
 CHD./VER.
 APPROVED

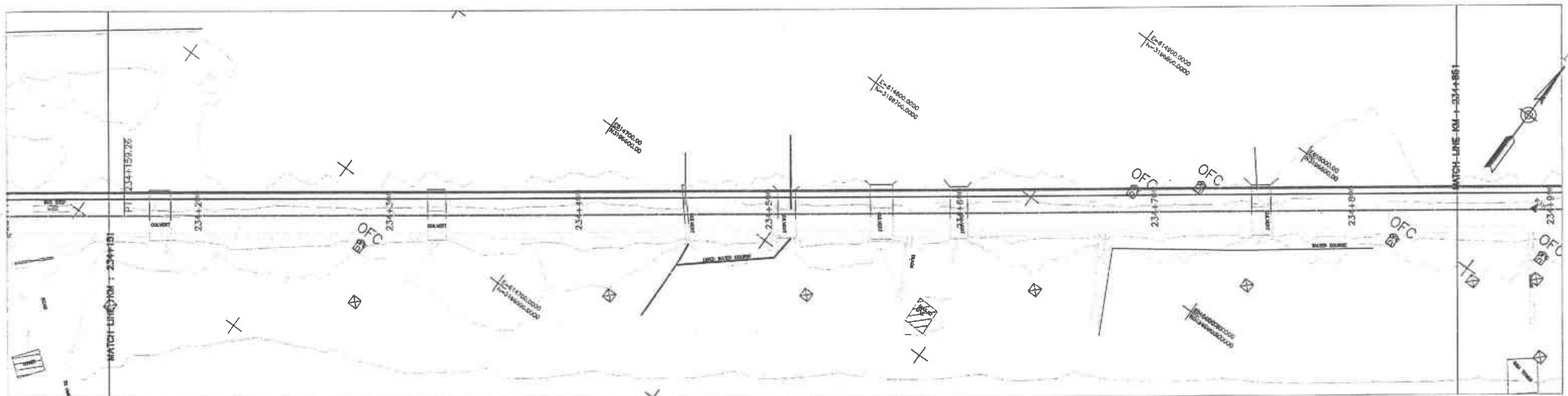


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2020 MAR 10

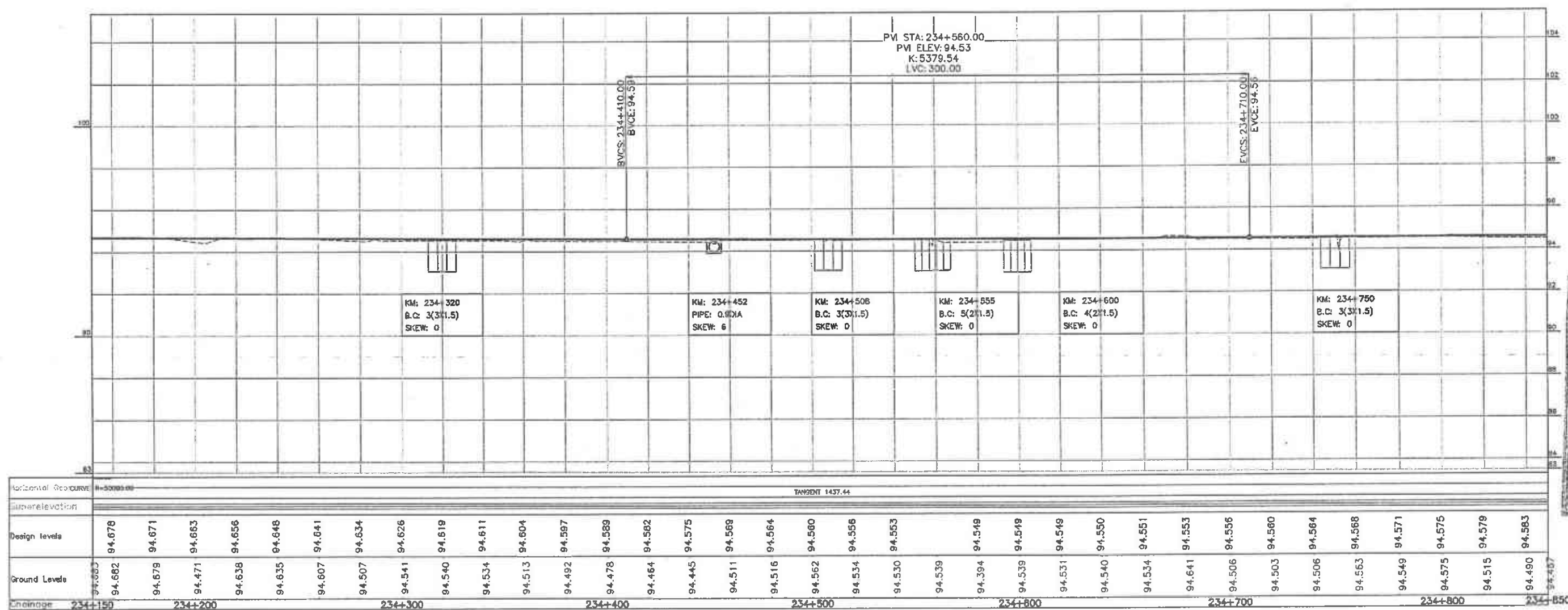


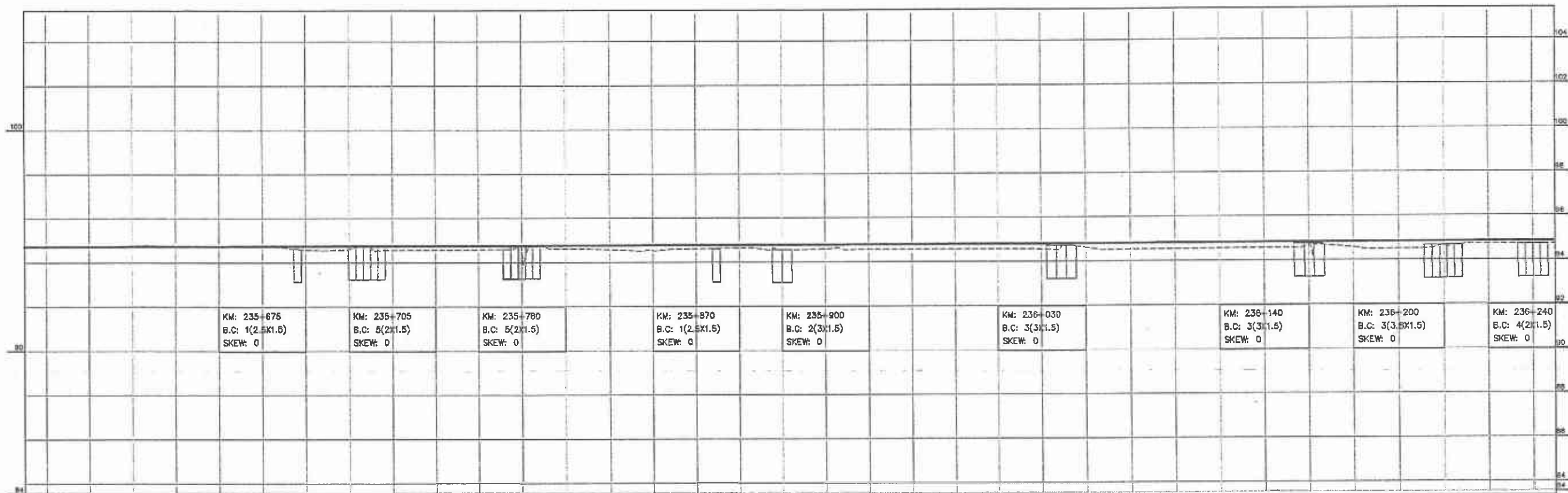
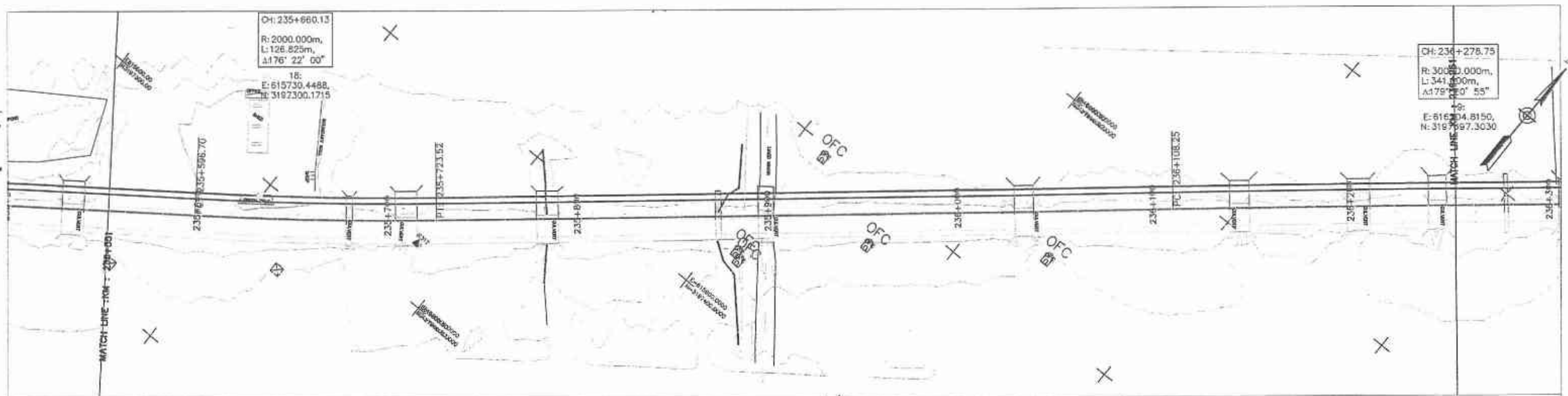
Horizontal Geometry		TANGENT 864.31																				CURVE R=50000.00															
Superelevation																																					
Design Levels		94.870	94.873	94.875	94.876	94.877		94.875	94.872	94.869	94.865	94.860	94.855	94.848	94.841	94.833	94.826	94.819	94.811	94.804	94.796	94.789	94.782	94.774	94.767	94.759	94.752	94.745	94.737	94.730	94.722	94.715	94.708	94.700	94.693	94.685	
Ground Levels		94.537	94.597	94.597	94.484	94.498	94.557	94.534	94.526	94.556	94.718	94.481	94.480	94.479	94.554	94.452	94.448	94.425	94.520	94.517	94.514	94.512	94.538	94.534	94.530	94.543	94.508	94.498	94.488	94.429	94.393	94.406	94.656	94.663	94.677	94.681	94.685
Chainage		233+450	233+500				233+600				233+700				233+800				233+900				234+000				234+100				234+150						





30 JUNE 2018

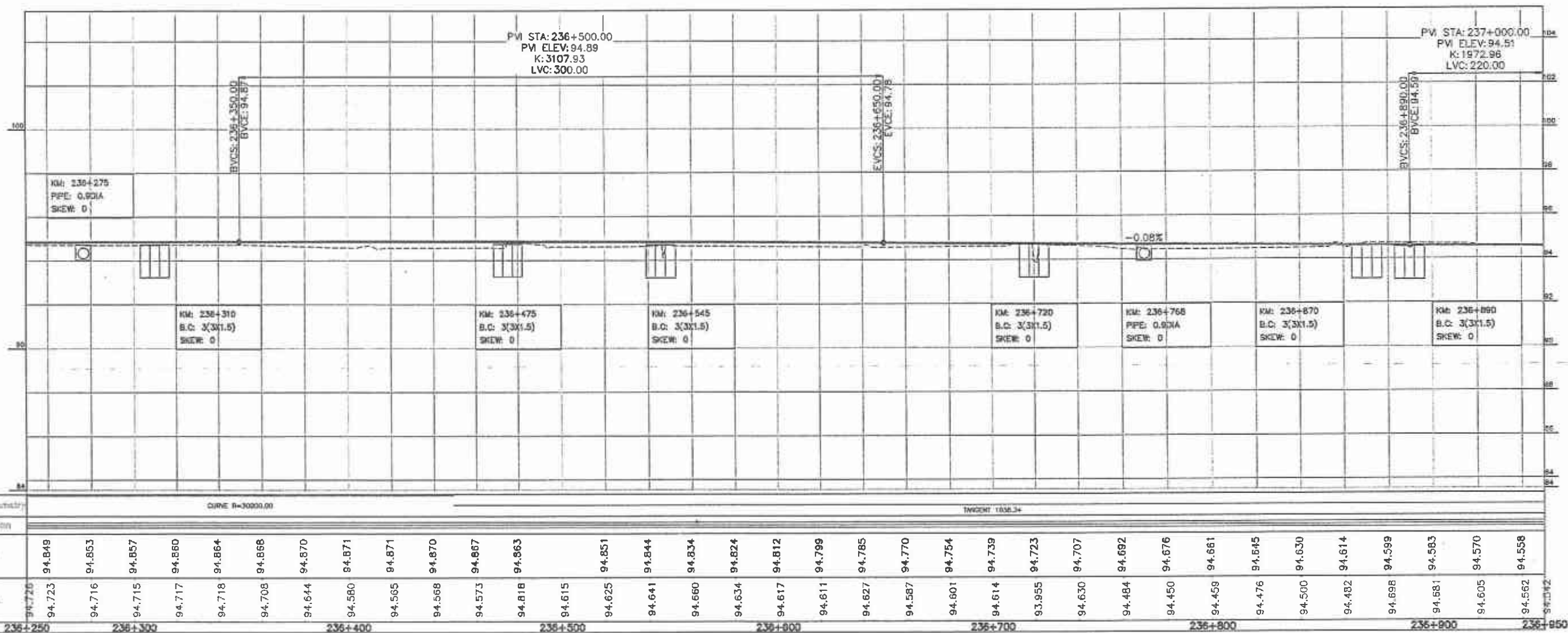
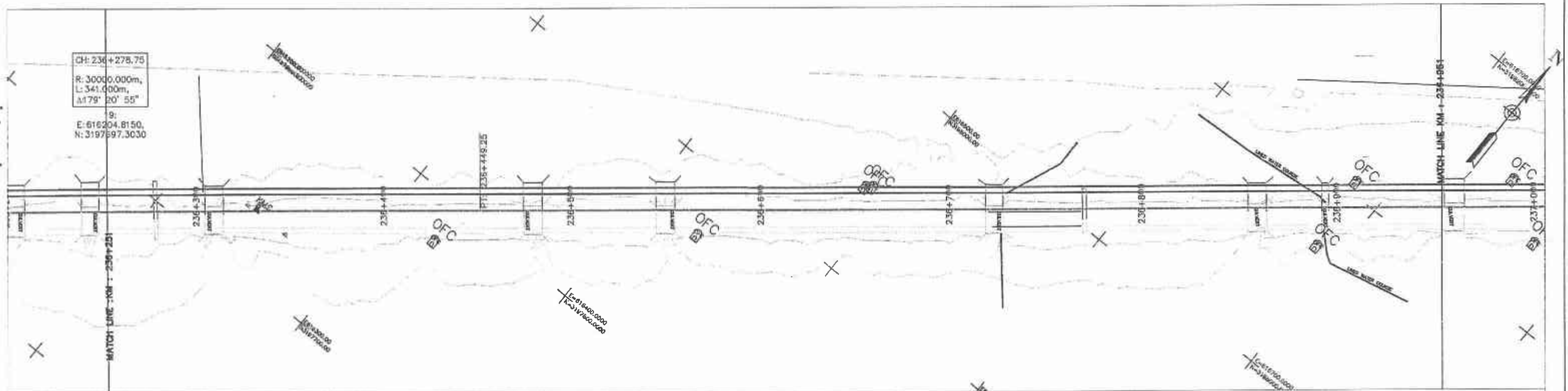




Horizontal Geometry	TANGENT 1437.44																CURVE R=2000.00																TANGENT 384.72																CURVE R=3000.00																																																																	
Superelevation																																																																																																																		
Design Levels	94.718	94.721	94.725	94.729	94.733	94.736	94.740	94.744	94.748	94.751	94.755	94.759	94.763	94.766	94.770	94.774	94.778	94.781	94.785	94.789	94.793	94.796	94.800	94.804	94.808	94.812	94.815	94.819	94.823	94.827	94.830	94.834	94.838	94.842	94.845																																																																															
Ground Levels	94.672	94.718	94.725	94.762	94.747	94.723	94.710	94.581	94.602	94.553	94.589	94.594	94.585	94.619	94.577	94.530	94.615	94.639	94.552	94.594	94.561	94.561	94.562	94.562	94.553	94.624	94.521	94.535	94.550	94.565	94.694	94.578	94.503	94.688	94.737	94.730																																																																														
Chainage	235+550	235+600																235+700																235+800																235+900																236+000																236+100																236+200																236+250

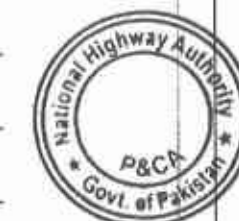
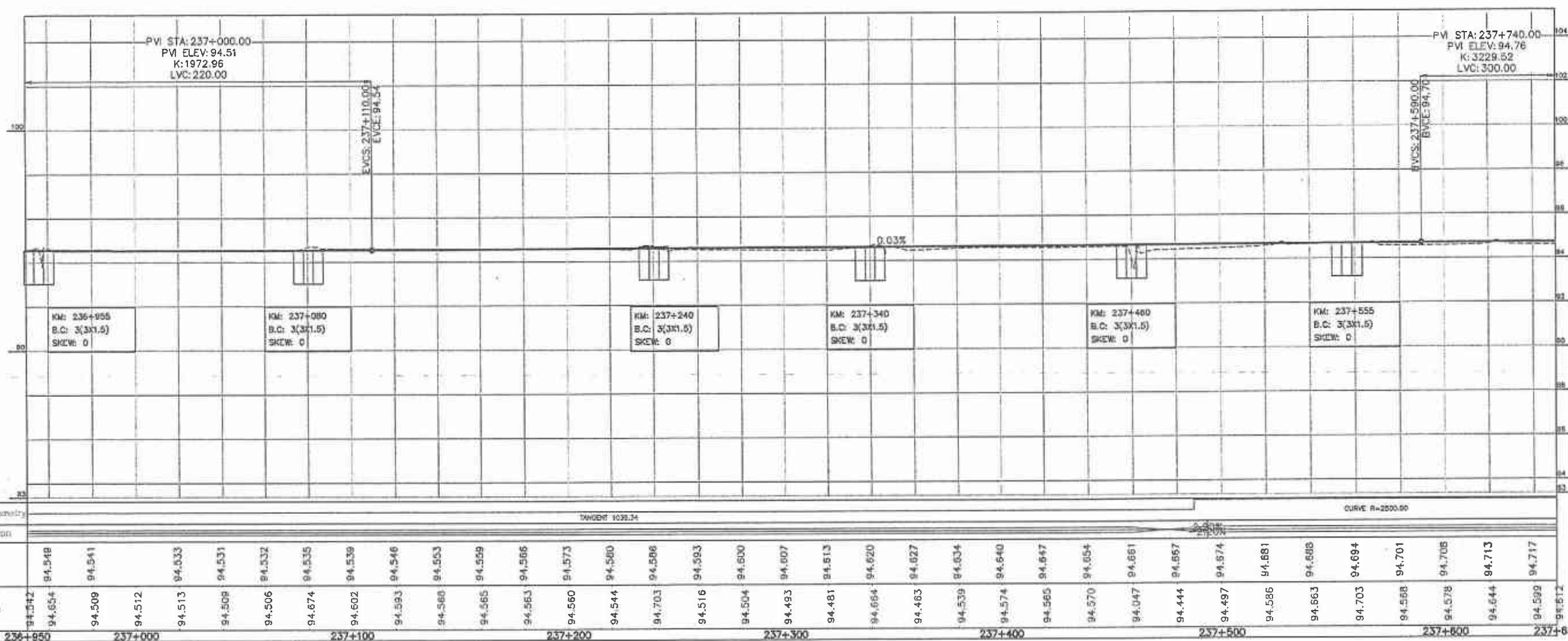
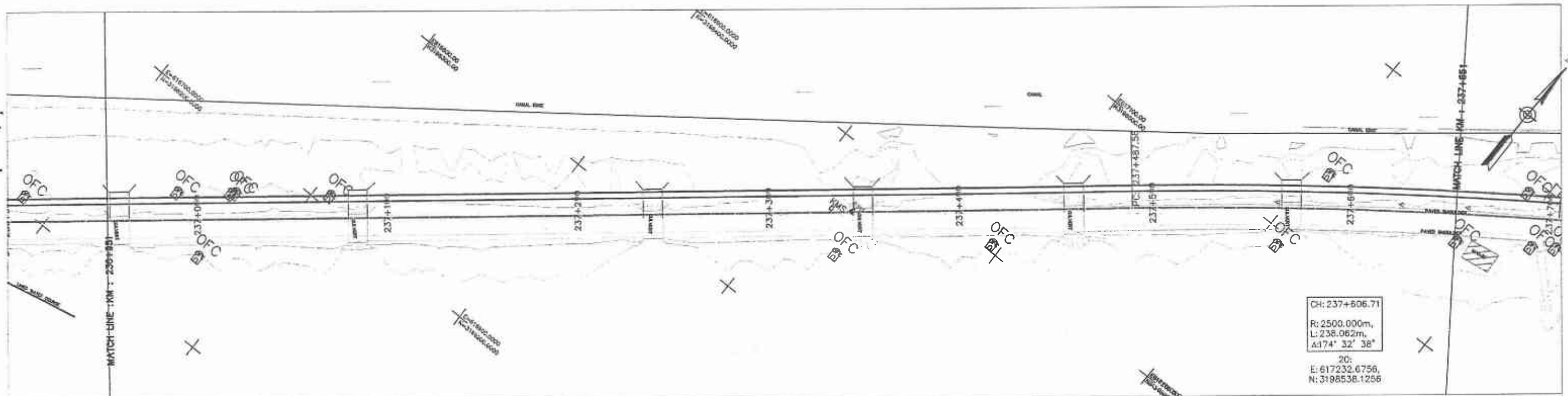


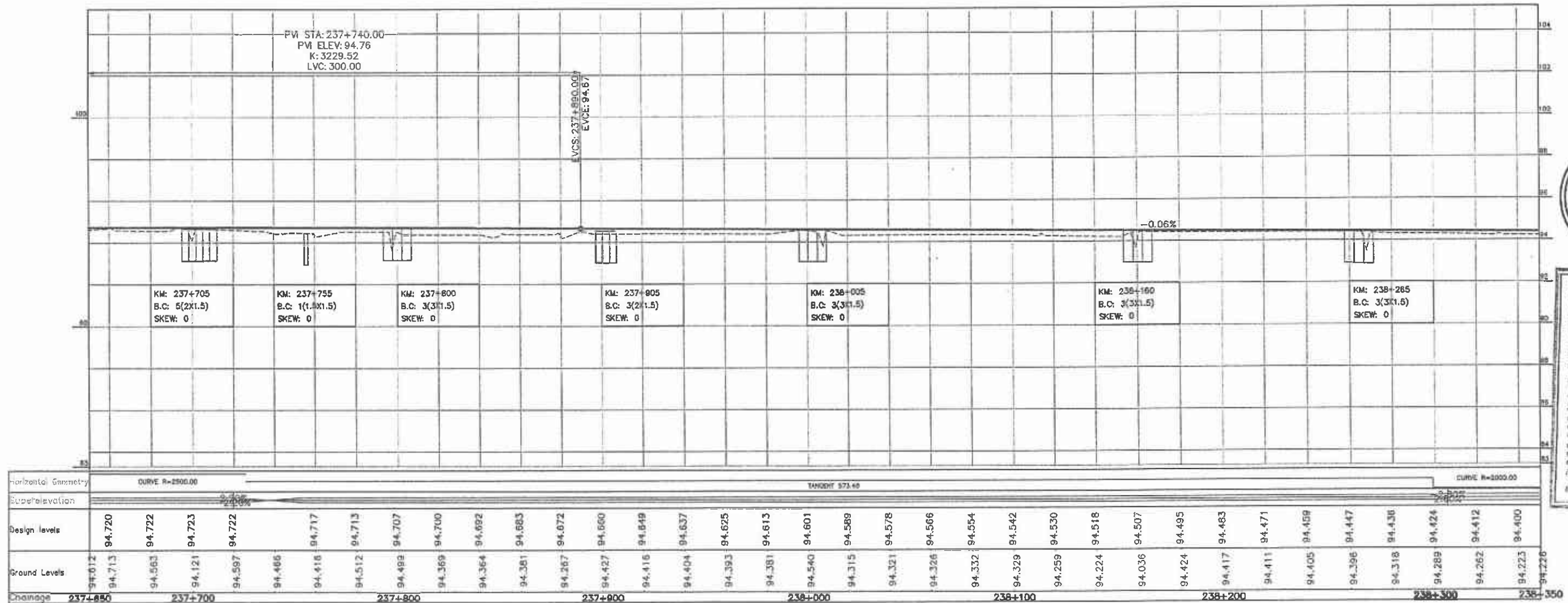
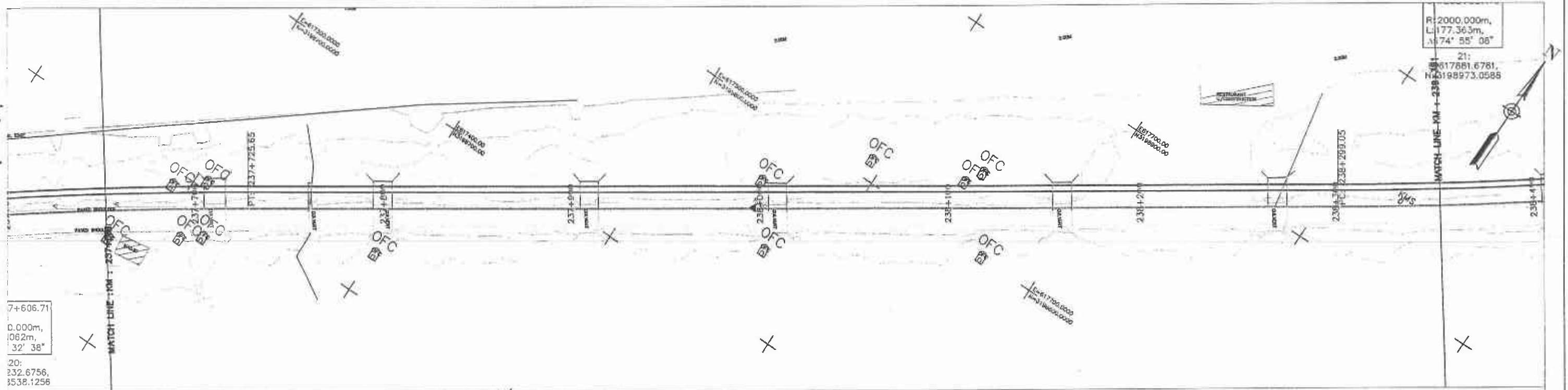
REVISIONS



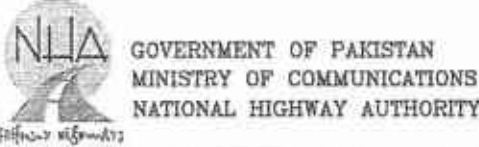
3005/102/TD/P&P340

GOVERNMENT OF PAKISTAN MINISTRY OF COMMUNICATIONS NATIONAL HIGHWAY AUTHORITY	NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD.	Project Manager M/S NEEPAK	DRAWN M. A. NADEEM AWAN	RATODERO ~ RAJANPUR ROAD (SECTION-IV) (KASHMORE TO RAJANPUR)	PLAN & PROFILE KM: 236+250 ~ KM: 236+650 SCALE: 1:2000	
			SUBMITTED RECOMMENDED CHD./VER.		REV. DATE DESCRIPTION APPROVED APPROVED	DATE: JUNE, 2018 DWG NO.: 3005/102/TD/P&P340





RENDER DRAWING

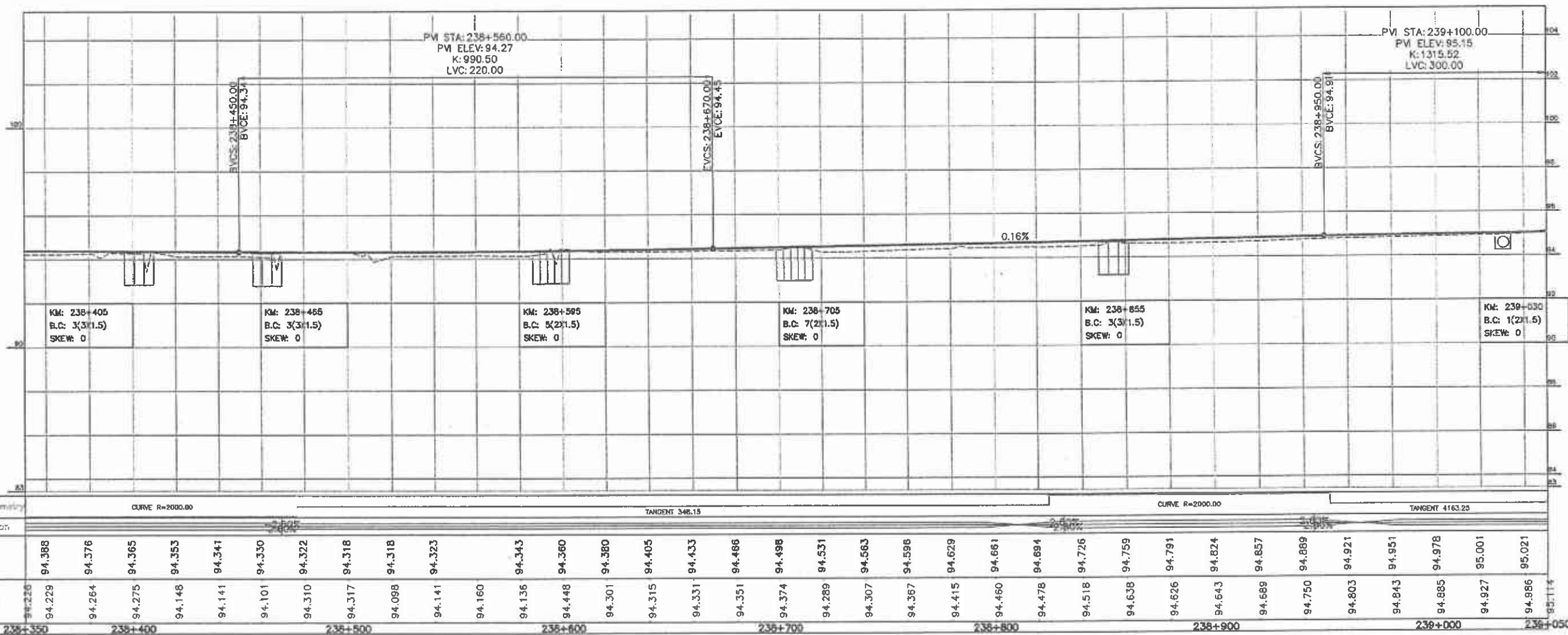
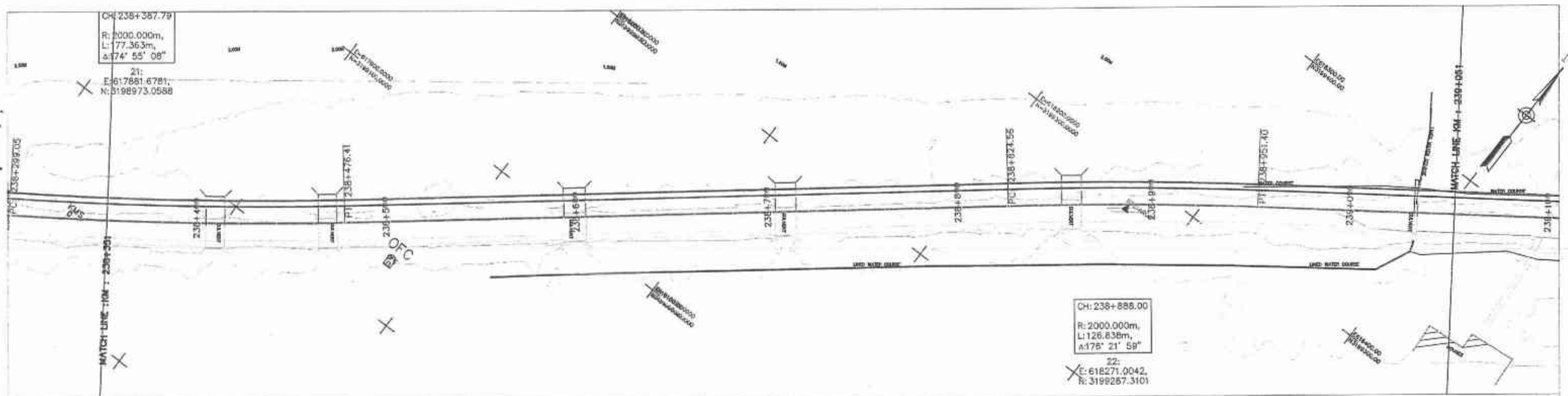


NES
NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD.

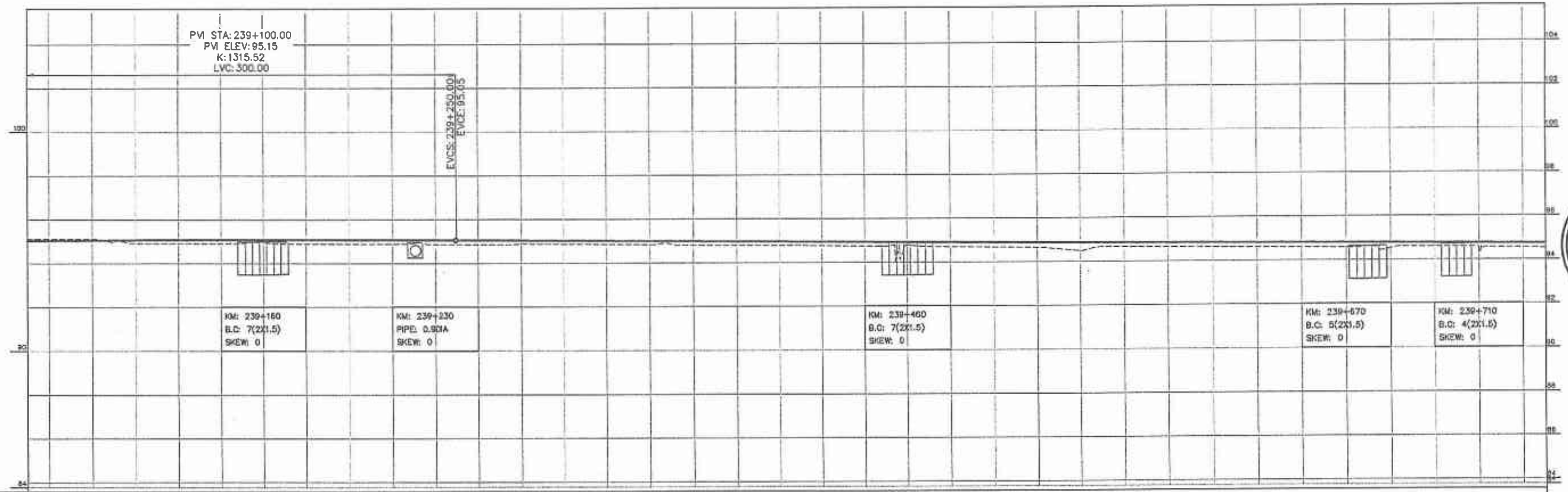
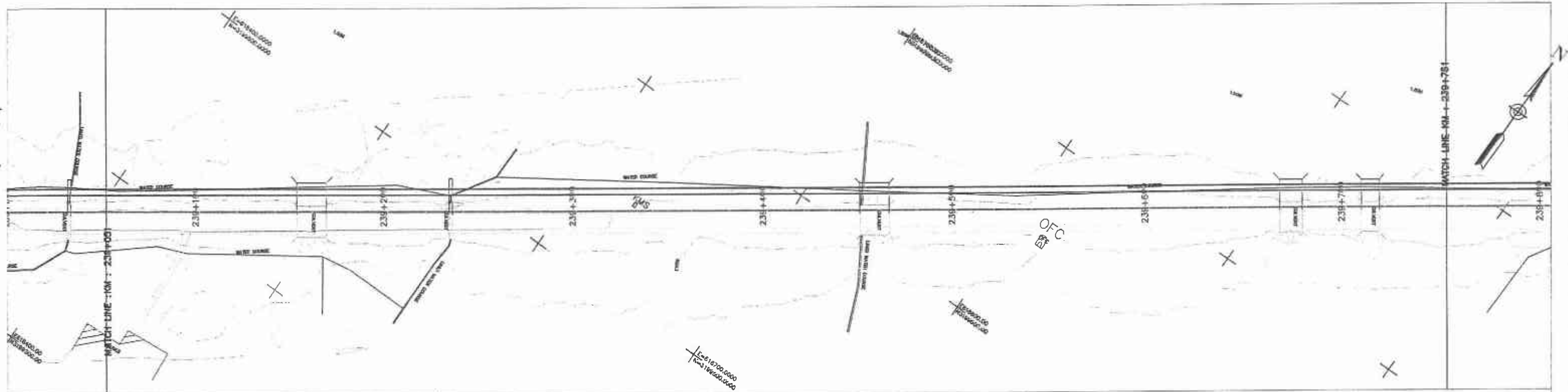
REV.	DATE	DESCRIPTION	APPROVED	APPROVED

RATODERO ~ RAJANPUR ROAD
(SECTION-IV)
(KASHMORE TO RAJANPUR)

PLAN & PROFILE	SCALE
KM: 237+650 ~ KM: 238+350	1:2000
DATE	DWG NO.
JUNE, 2018	3905/102/TD/P&P342



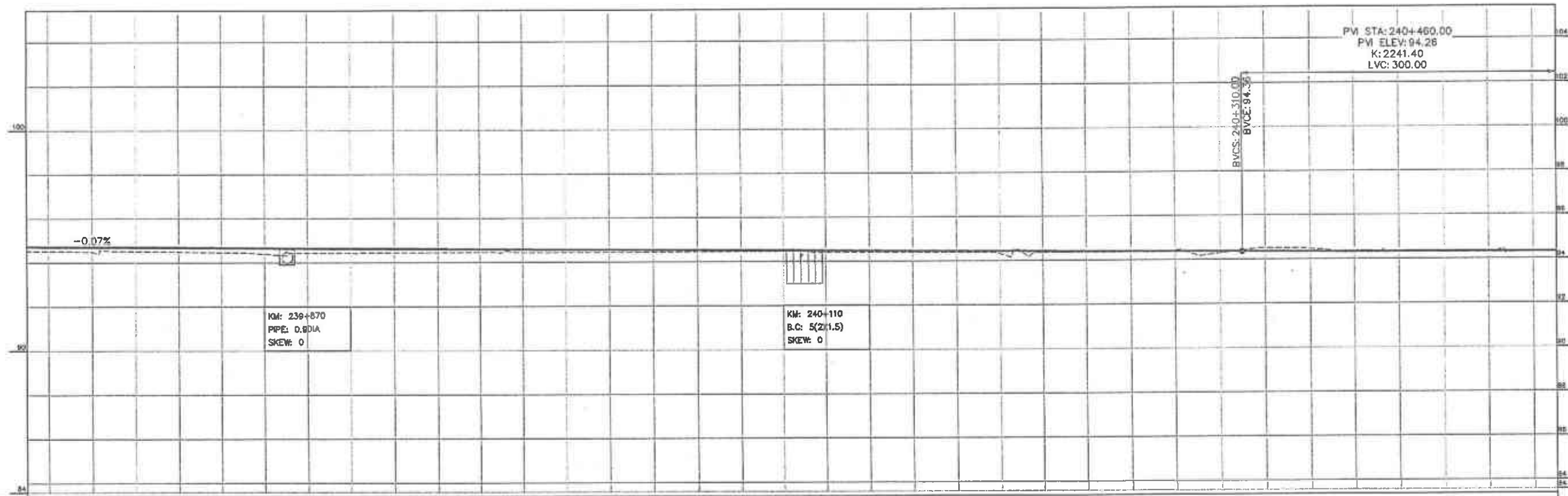
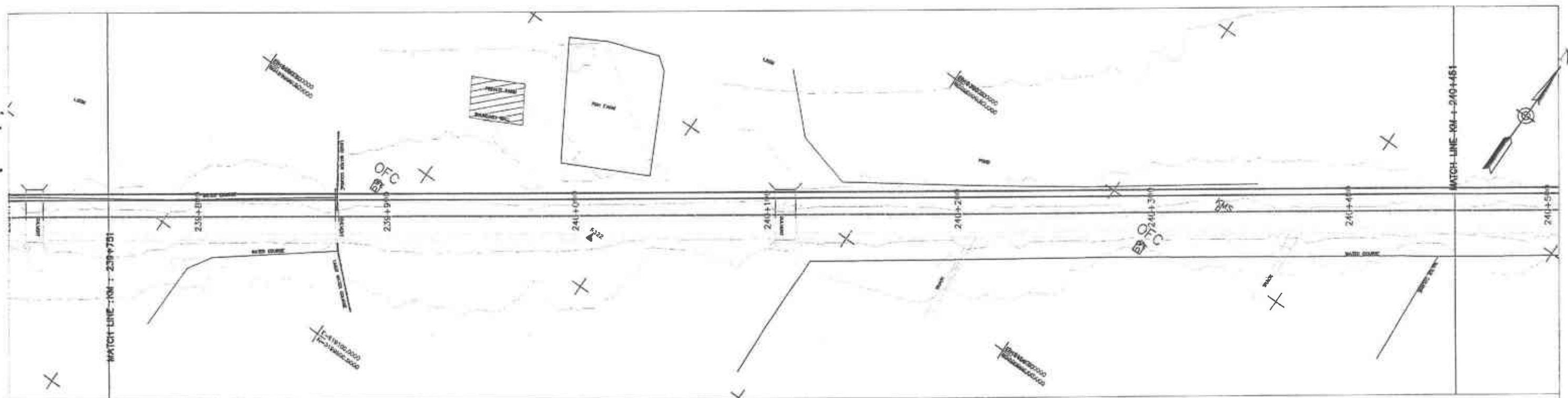
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2018 JUN 14



Horizontal Geometry	TANGENT 4583.38																																																																				
Superelevation																																																																					
Design Levels	95.039		95.053		95.073		95.078		95.080		95.079		95.075		95.068		95.059		95.046		95.033		95.020		95.007		94.994		94.981		94.968		94.955		94.942		94.929		94.916		94.903		94.890		94.877		94.864		94.851		94.838		94.825		94.812		94.799		94.786		94.773		94.759		94.746		94.733		
Ground Levels	95.119		95.128		94.921		94.914		94.909		95.006		94.892		94.878		94.881		94.857		94.850		94.868		94.868		94.856		94.824		94.800		94.790		94.781		94.766		94.740		94.782		94.694		94.675		94.656		94.493		94.660		94.645		94.625		94.611		94.596		94.576		94.531		94.605		94.527		94.544
Change	238+050	238+100			238+200			238+300			238+400			238+500			238+600			238+700			238+750																																														



3905/102/TD/P&P344



Horizontal Geometry		Tangent 4183.35																			
Superelevation																					
Design Levels		94.720	94.707	94.684	94.661	94.638	94.615	94.592	94.569	94.546	94.523	94.500	94.477	94.454	94.431	94.408	94.385	94.362	94.339	94.316	94.293
Ground Levels		94.533	94.522	94.488	94.516	94.490	94.465	94.492	94.429	94.430	94.449	94.453	94.460	94.449	94.444	94.451	94.439	94.403	94.401	94.400	94.390
Chainage		239+750	239+800	239+850	239+900	239+950	240+000	240+050	240+100	240+150	240+200	240+250	240+300	240+350	240+400	240+450					



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MINISTRY OF COMMUNICATIONS
NATIONAL HIGHWAY AUTHORITY

NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD.

JAWED UL HAQ
Project Manager
N/S NESPA

REV.	DATE	DESCRIPTION	APPROVED

DRAWN
SUBMITTED
RECOMMENDED
CHD./VER.

M A NADEEM ANWAR

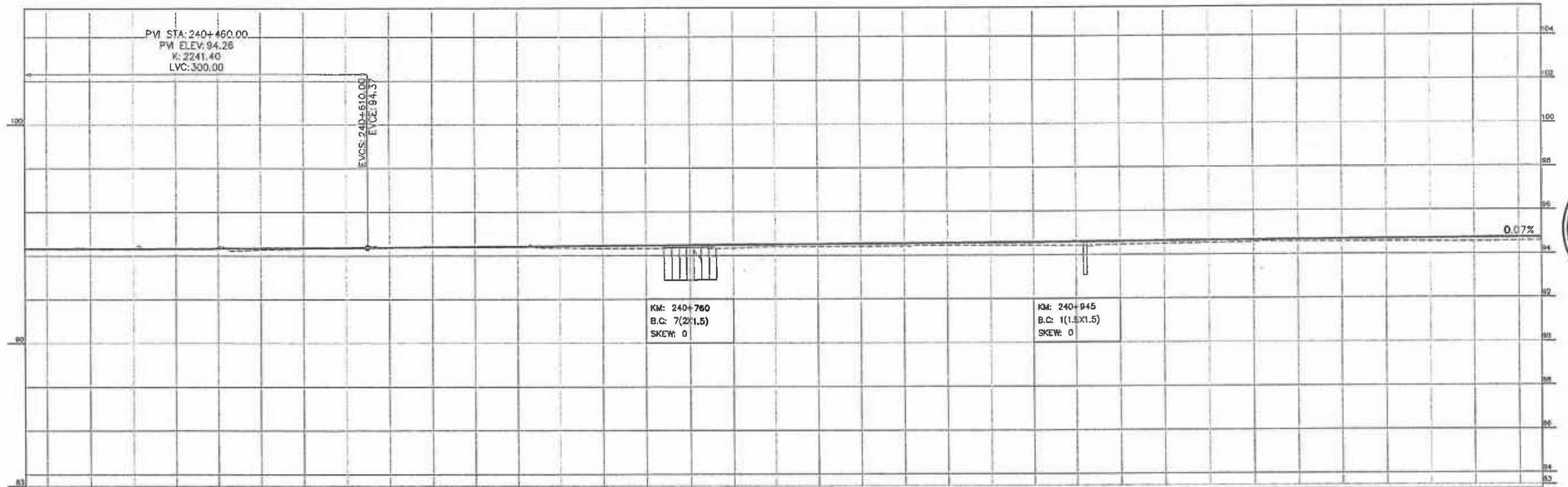
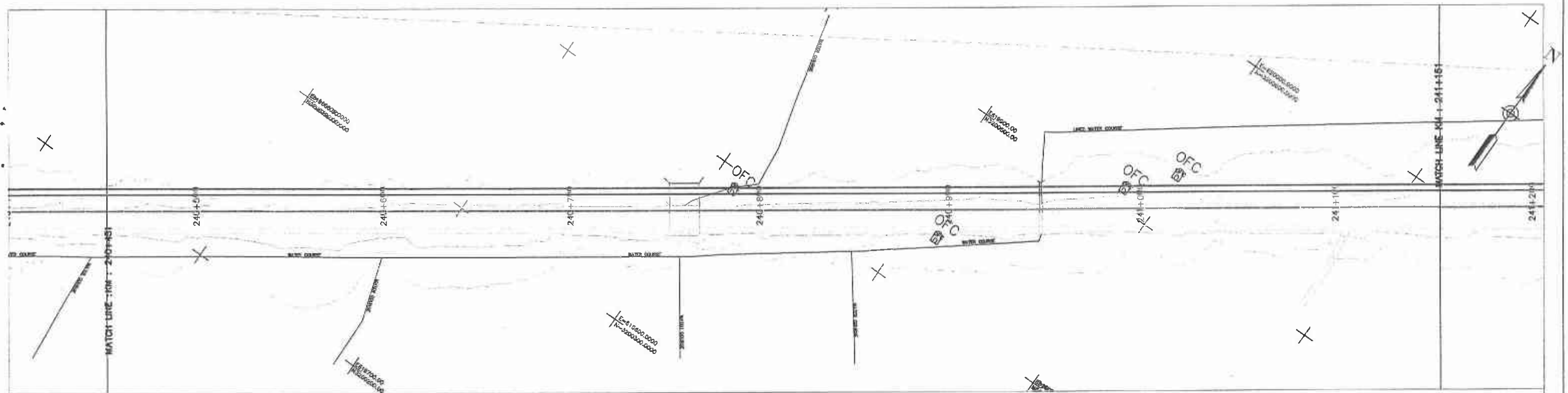
RATODERO ~ RAJANPUR ROAD
(SECTION-IV)
(KASHMORE TO RAJANPUR)

PLAN & PROFILE
KM: 239+750 ~ KM: 240+450

SCALE
1:2000

DATE
JUNE, 2018

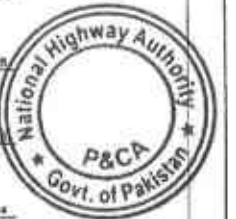
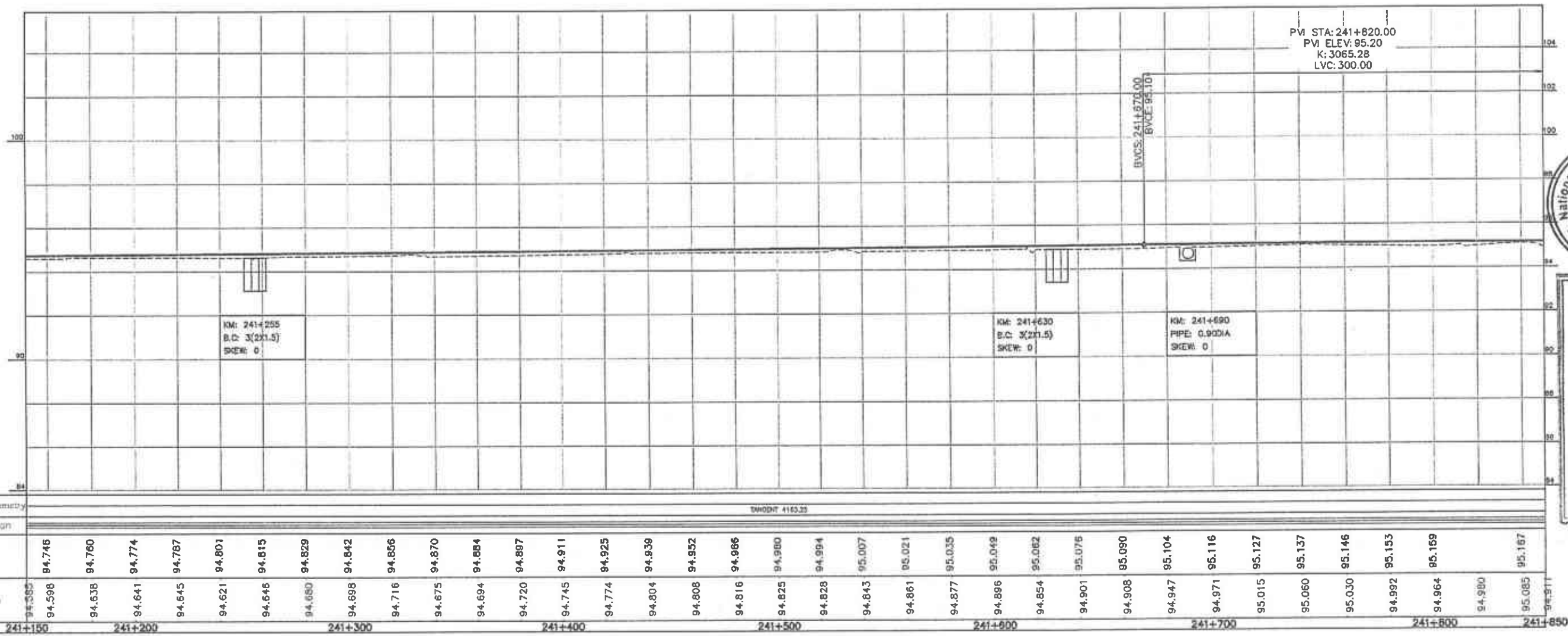
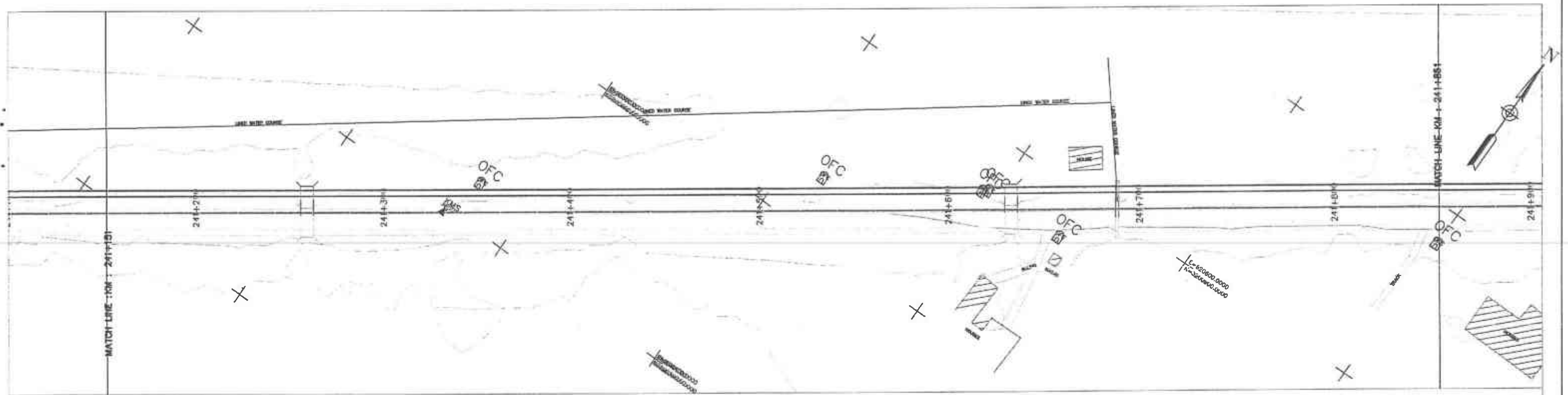
DWG NO.
3905/102/TD/P&P345






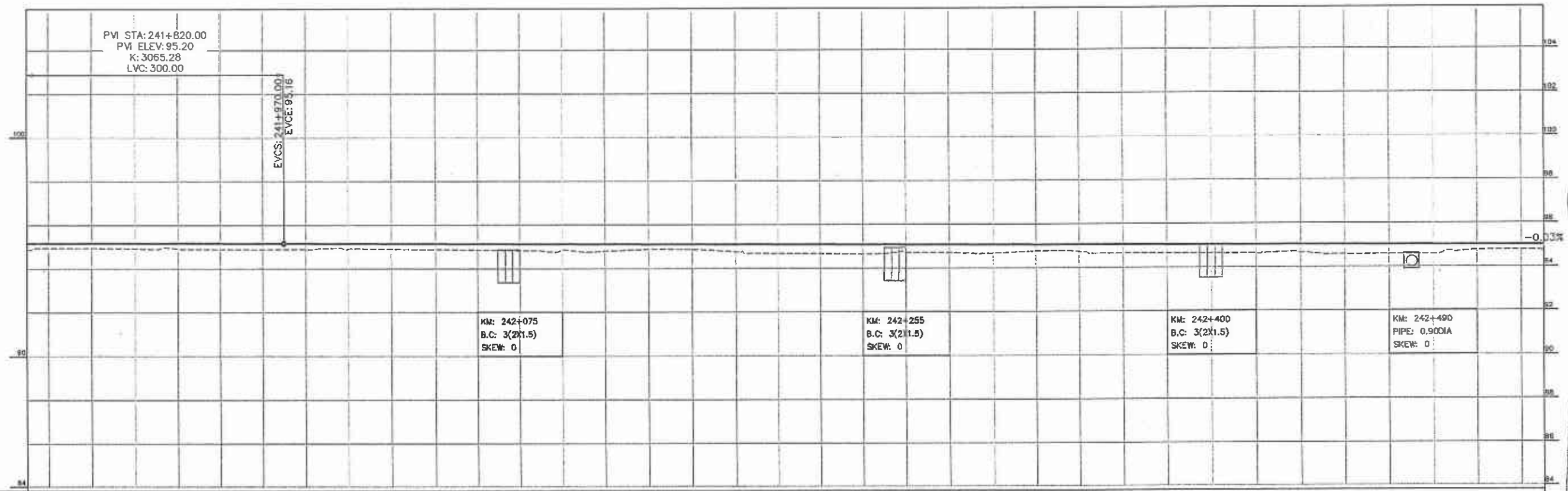
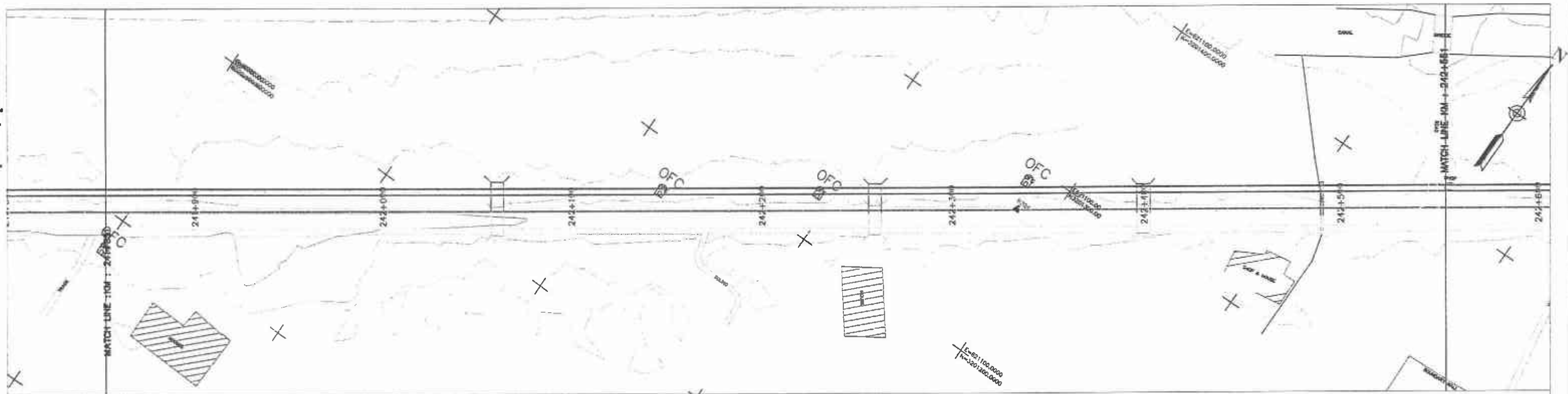
Horizontal Geometry	TANGENT 4163.25																			
Superelevation																				
Design Levels	94.316	94.319	94.324	94.331	94.339	94.349	94.361	94.375	94.389	94.402	94.416	94.430	94.444	94.457	94.471	94.485	94.499	94.512	94.526	94.540
Ground Levels	94.323	94.331	94.344	94.338	94.310	94.397	94.264	94.313	94.382	94.396	94.394	94.392	94.387	94.344	94.326	94.325	94.363	94.332	94.388	94.419
Chainage	240+450	240+500	240+600	240+700	240+800	240+900	241+000	241+100	241+150											



<p>GOVERNMENT OF PAKISTAN MINISTRY OF COMMUNICATIONS NATIONAL HIGHWAY AUTHORITY</p>	<p>NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD.</p>	<p>REV. DATE DESCRIPTION APPROVED</p>	<p>DRAWN M. A. NADEEM AWAN</p>	<p>RATODERO ~ RAJANPUR ROAD (SECTION-IV) (KASHMORE TO RAJANPUR)</p>	<p>PLAN & PROFILE KM: 240+450 ~ KM: 241+150 SCALE 1:2000</p>	
			<p>SUBMITTED</p>		<p>DATE JUNE, 2018</p>	<p>DWG NO. 3905/102/TD/P&P346</p>

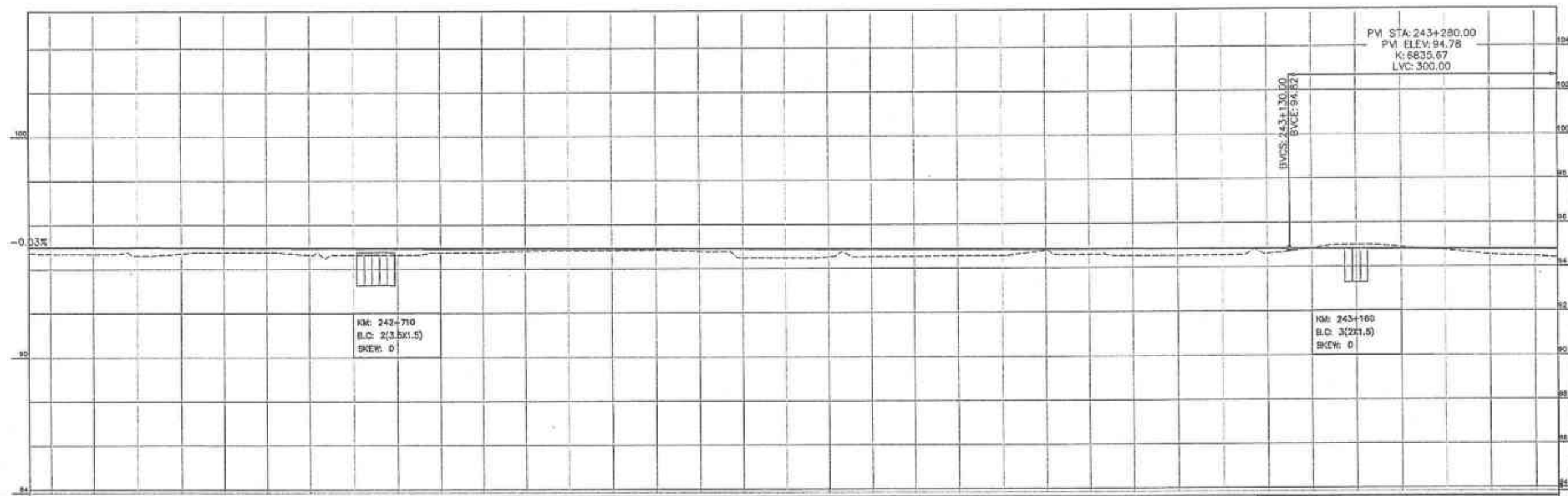
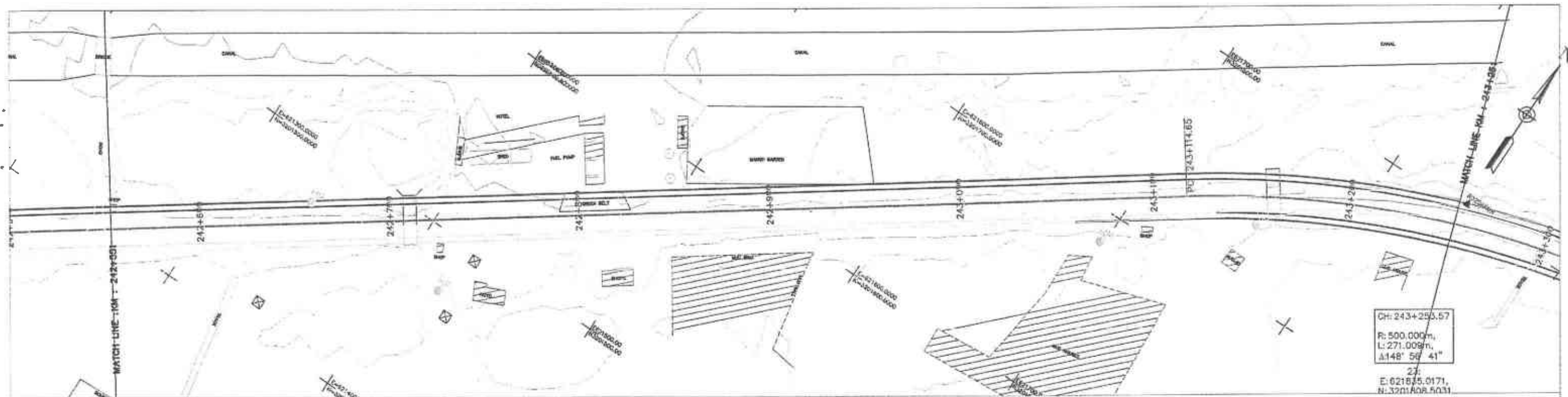


 GOVERNMENT OF PAKISTAN MINISTRY OF COMMUNICATIONS NATIONAL HIGHWAY AUTHORITY	 NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD.	 Project Manager	DRAWN	M A NADEEM AWAN	RATODERO ~ RAJANPUR ROAD (SECTION-IV) (KASHMORE TO RAJANPUR)	PLAN & PROFILE KM: 241+150 ~ KM: 241+850		SCALE
			SUBMITTED					1:2000
			RECOMMENDED					
			CHD./VER.					
REV.	DATE	DESCRIPTION	APPROVED	APPROVED		DATE	DWG NO.	
						JUNE, 2018	3905/102/TD/P&P347	

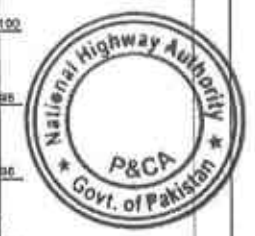


Horizontal Geometry		TANGENT 4163.25	
Superelevation			
Design Levels	Ground Levels	Chainage	
95.169	94.947	241+850	
95.169	94.940	241+900	
95.169	94.931		
95.167	94.919		
95.164	94.899		
95.159	94.879		
95.153	94.894		
95.148	94.908		
95.142	94.906		
95.136	94.880		
95.130	94.856		
95.124	94.831		
95.118	94.835		
95.113	94.794		
95.107	94.880		
95.101	94.869		
95.095	94.760		
95.089	94.680		
95.084	94.663		
95.078	94.645		
95.072	94.704		
95.066	94.694		
95.060	94.675		
95.054	94.772		
95.049	94.746		
95.043	94.651		
95.037	94.648		
95.031	94.644		
95.025	94.652		
95.020	94.638		
95.014	94.575		
95.008	94.585		
95.002	94.595		
94.996	94.762		
94.990	94.767		
	94.739		



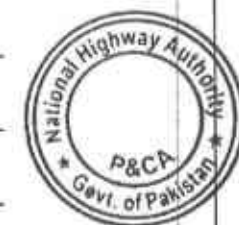
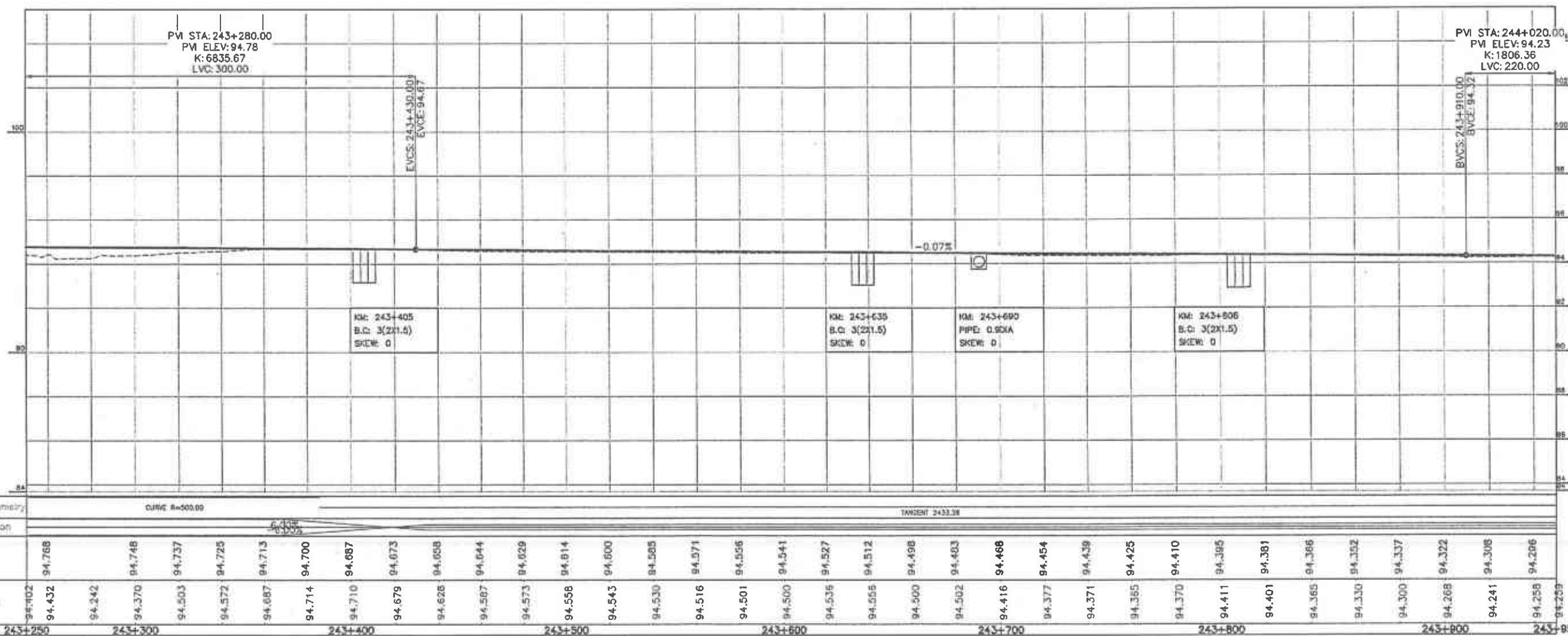
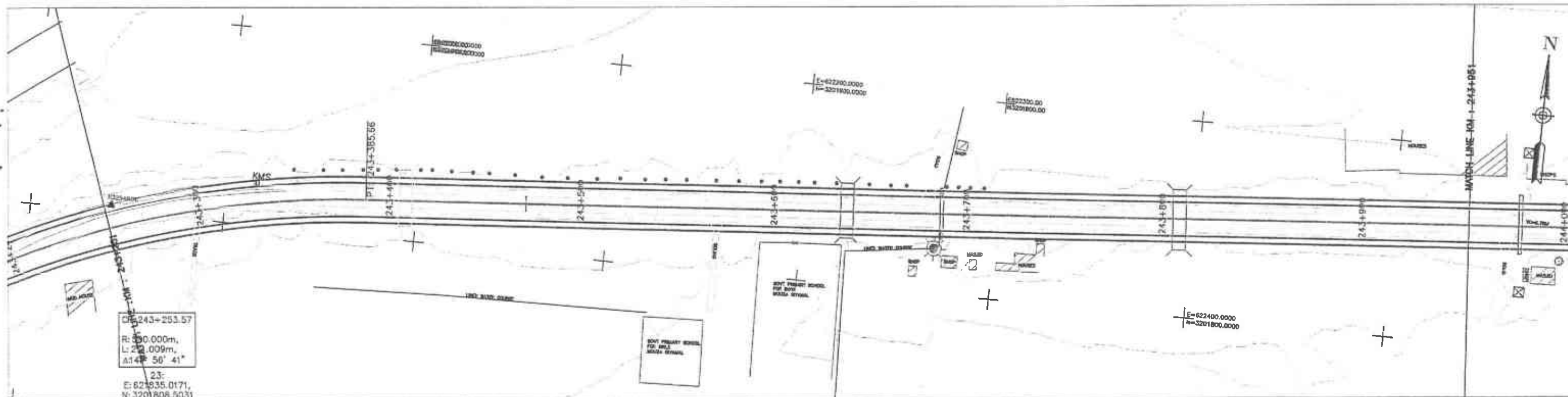


Horizontal Geometry	TANGENT 4163.32																												CURVE R=500.00						
Superelevation	0.03%																																		
Design Levels	94.985	94.979	94.973	94.967	94.961	94.955	94.950	94.944	94.938	94.932	94.926	94.921	94.915	94.909	94.903	94.897	94.891	94.886	94.880	94.874	94.868	94.862	94.857	94.851	94.845	94.839	94.833	94.827	94.822	94.816	94.809	94.802	94.795	94.787	94.778
Ground Levels	94.739	94.691	94.686	94.614	94.702	94.752	94.642	94.639	94.639	94.731	94.745	94.806	94.821	94.828	94.835	94.779	94.478	94.471	94.519	94.521	94.540	94.556	94.563	94.785	94.507	94.534	94.534	94.536	94.611	94.533	94.993	94.890	94.732	94.528	94.456
Chainage	242+550		242+600			242+700			242+800			242+900			243+000			243+100			243+200			243+250											

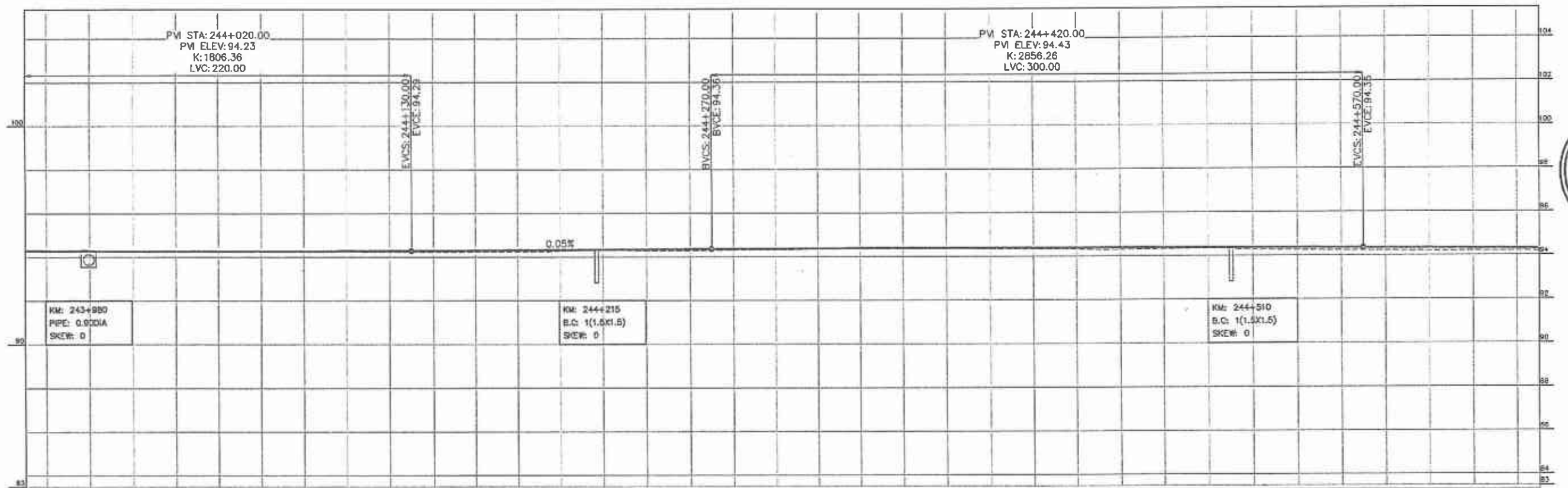
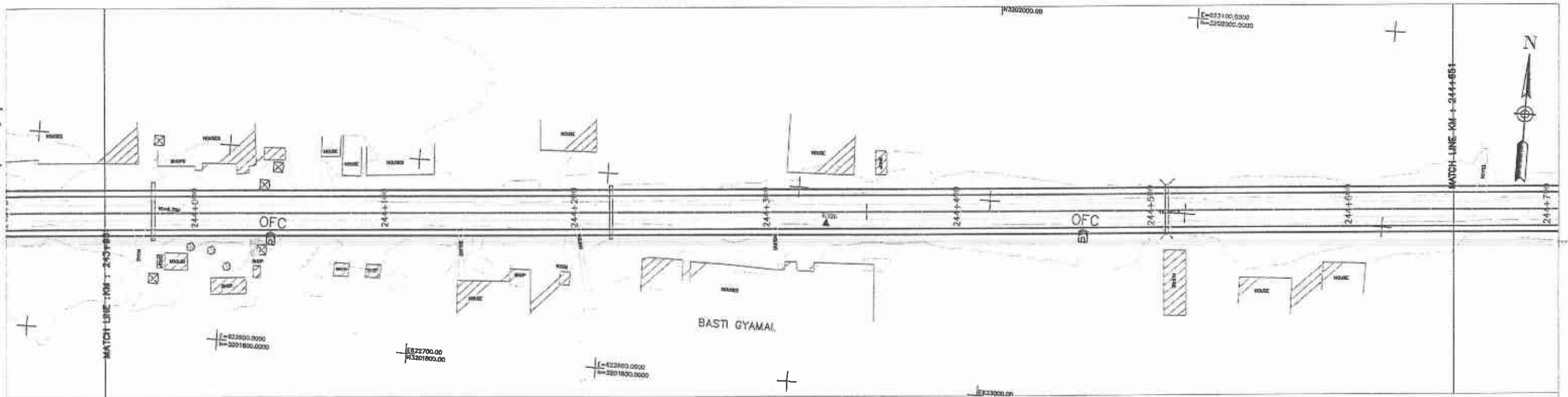


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GOVERNMENT OF PAKISTAN MINISTRY OF COMMUNICATIONS NATIONAL HIGHWAY AUTHORITY	NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD.	JAWADUL HAO Project Manager M/S NESPAK		DRAWN SUBMITTED RECOMMENDED CHD./VER.	M. A. NADEEM AWAN	RATODERO ~ RAJANPUR ROAD (SECTION-IV) (KASHMORE TO RAJANPUR)	PLAN & PROFILE KM: 242+550 ~ KM: 243+250 SCALE: 1:2000	
		REV. DATE DESCRIPTION APPROVED	APPROVED	DATE: JUNE, 2018 DWG NO.: 3905/102/TD/P&P349				



REVISIONS

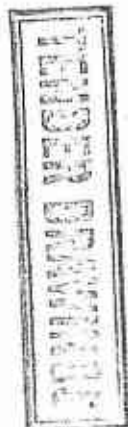
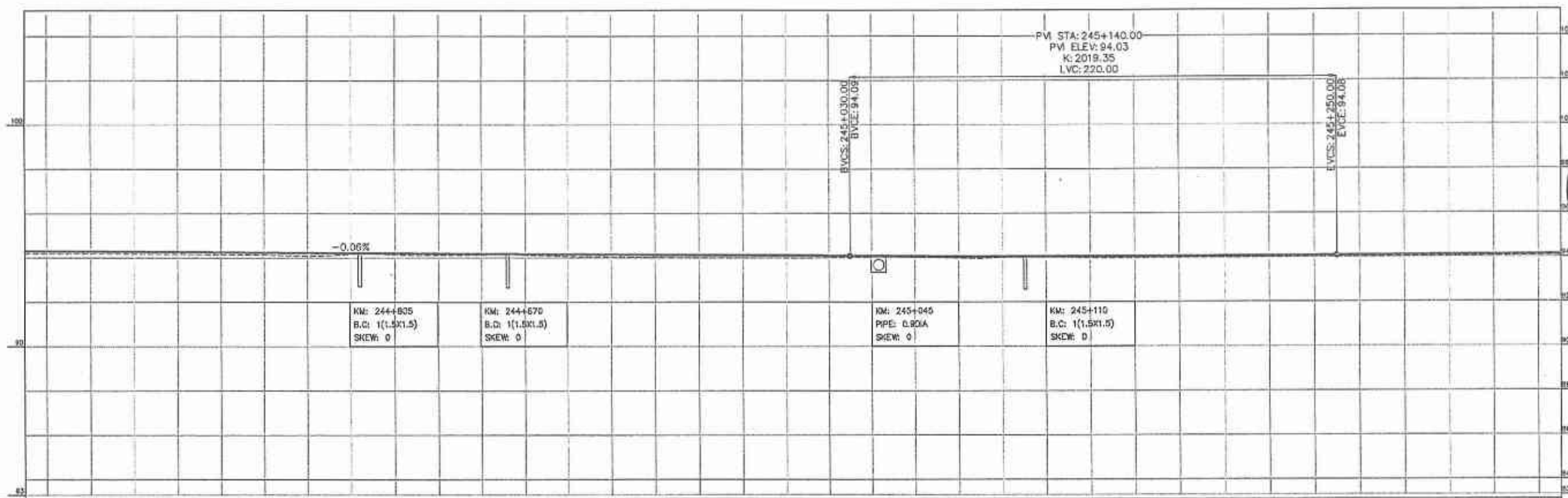
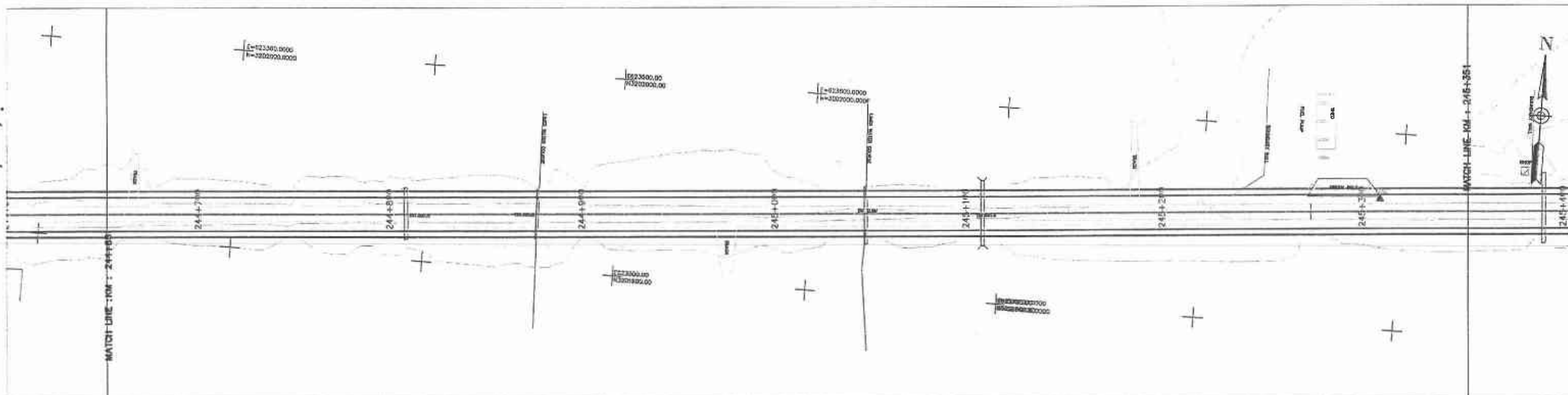


Horizontal Geometry	TANGENT 2433.56																			
Superelevation																				
Design Levels	94.286	94.278	94.272	94.267	94.268	94.271	94.276	94.284	94.293	94.303	94.313	94.323	94.332	94.342	94.352	94.362	94.370	94.377	94.382	94.387
Ground Levels	94.259	94.257	94.318	94.247	94.250	94.250	94.246	94.240	94.235	94.235	94.236	94.272	94.326	94.288	94.278	94.311	94.331	94.359	94.411	94.409
Chainage	243+950	244+000	244+100	244+200	244+300	244+400	244+500	244+600	244+700	244+800	244+850									

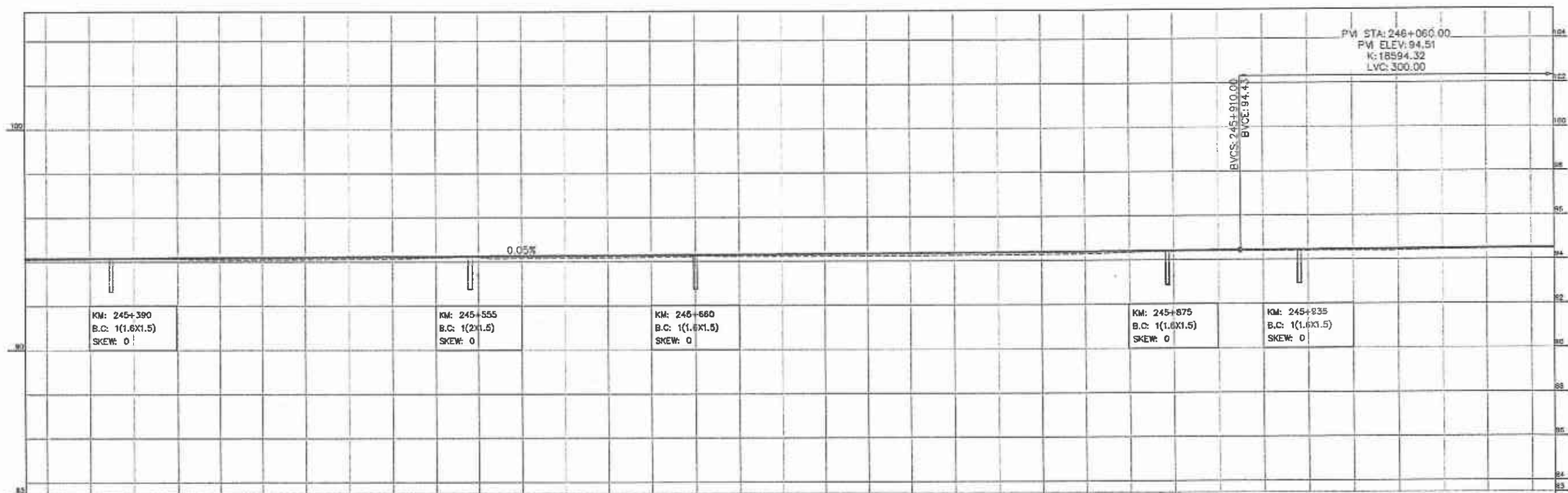
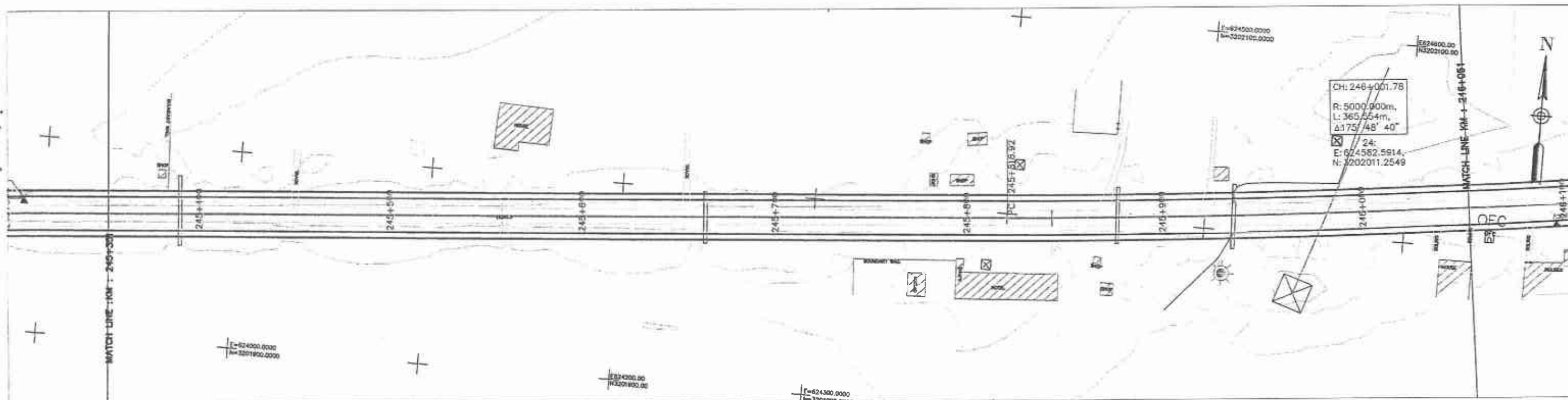


3005/102/TD/P&P351

GOVERNMENT OF PAKISTAN MINISTRY OF COMMUNICATIONS NATIONAL HIGHWAY AUTHORITY	NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD.	JAWAIDUL HAQ Project Manager M/S NESPAK		DRAWN M. A. NADEEM AWAN	RATODERO ~ RAJANPUR ROAD (SECTION-IV) (KASHMORE TO RAJANPUR)	PLAN & PROFILE KM: 243+950 ~ KM: 244+850 SCALE: 1:2000	
		REV. DATE DESCRIPTION APPROVED APPROVED	SUBMITTED RECOMMENDED CHD./VER.	DATE: JUNE, 2018 DWG NO.: 3905/102/TD/P&P351			



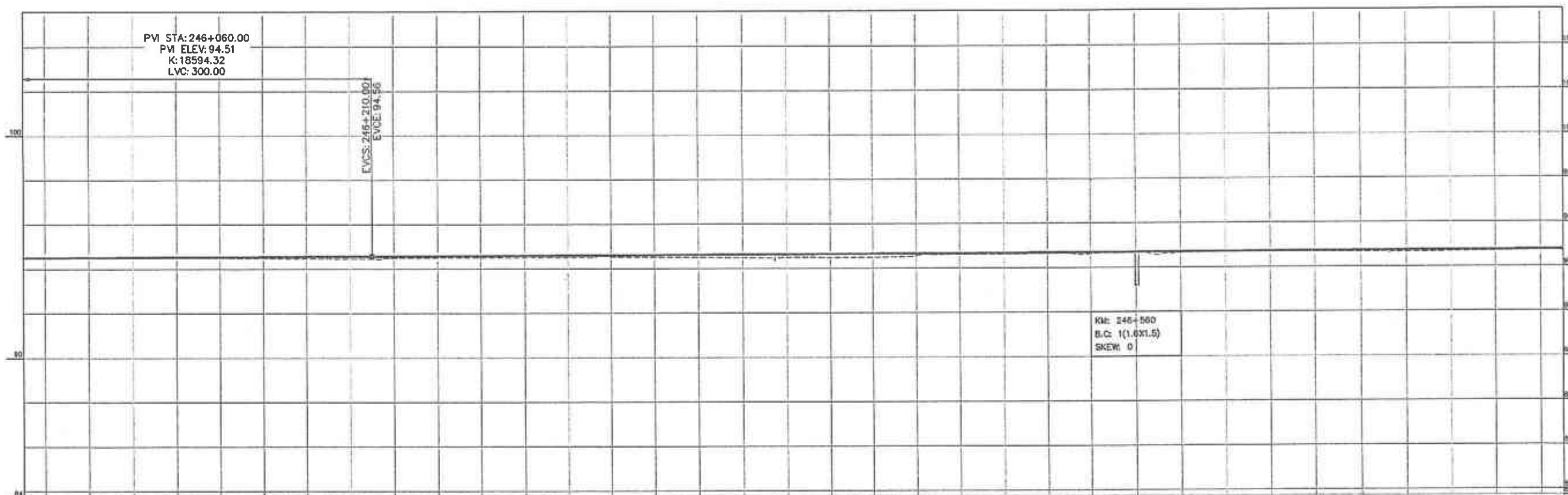
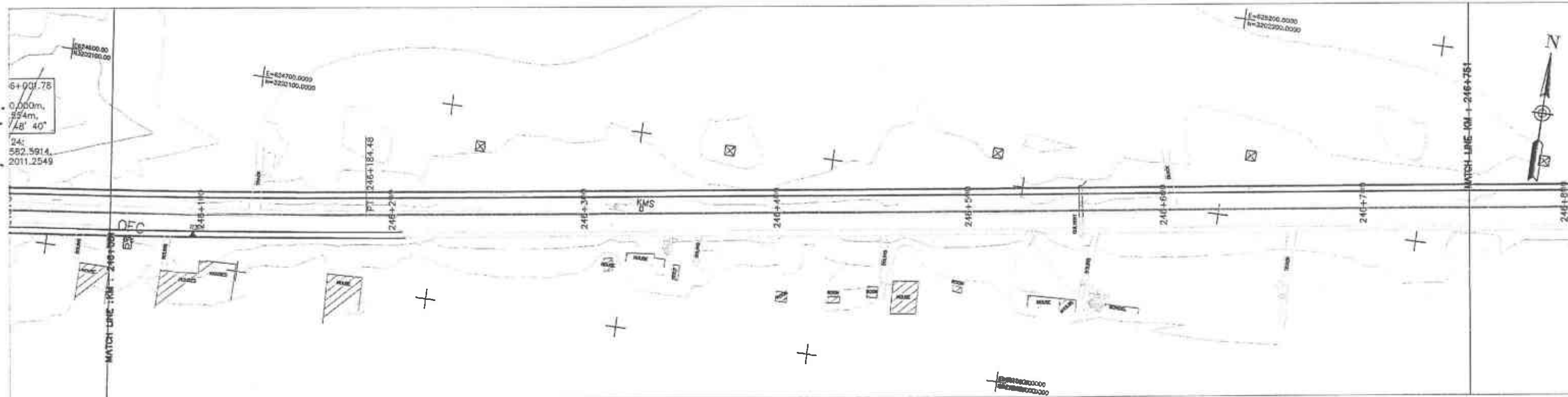
Stationing	244+650	244+700	244+800	244+900	245+000	245+100	245+200	245+300	245+350
Design Levels	94.295	94.284	94.273	94.261	94.250	94.239	94.228	94.216	94.205
Ground Levels	94.189	94.183	94.174	94.165	94.157	94.128	94.090	94.142	94.137
Chainage	244+650	244+700	244+800	244+900	245+000	245+100	245+200	245+300	245+350



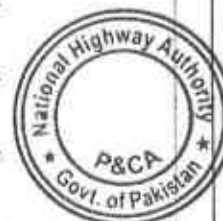
Horizontal Geometry	TANGENT 2433.06																				CURVE R=5000.00														
Superelevation																																			
Design Levels	94.141	94.152	94.162	94.173	94.183	94.194	94.204	94.215	94.225	94.236	94.246	94.257	94.268	94.278	94.289	94.299	94.310	94.320	94.331	94.341	94.352	94.362	94.373	94.384	94.394	94.405	94.415	94.426	94.436	94.447	94.457	94.467	94.476	94.486	94.495
Ground Levels	94.113	94.153	94.156	94.130	94.103	94.102	94.111	94.120	94.133	94.190	94.216	94.159	94.172	94.185	94.198	94.237	94.227	94.231	94.232	94.233	94.237	94.249	94.262	94.276	94.295	94.345	94.383	94.384	94.387	94.398	94.391	94.396	94.432	94.463	94.494
Chainage	245+350	245+400			245+500			245+600			245+700			245+800			245+900			246+000			246+050												



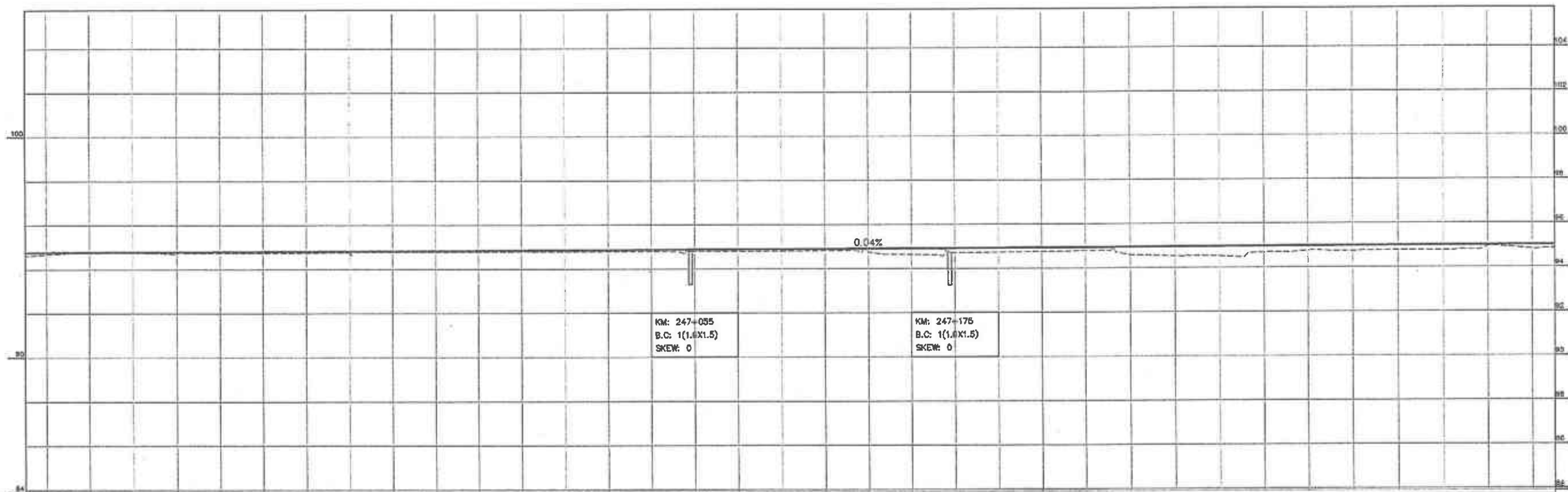
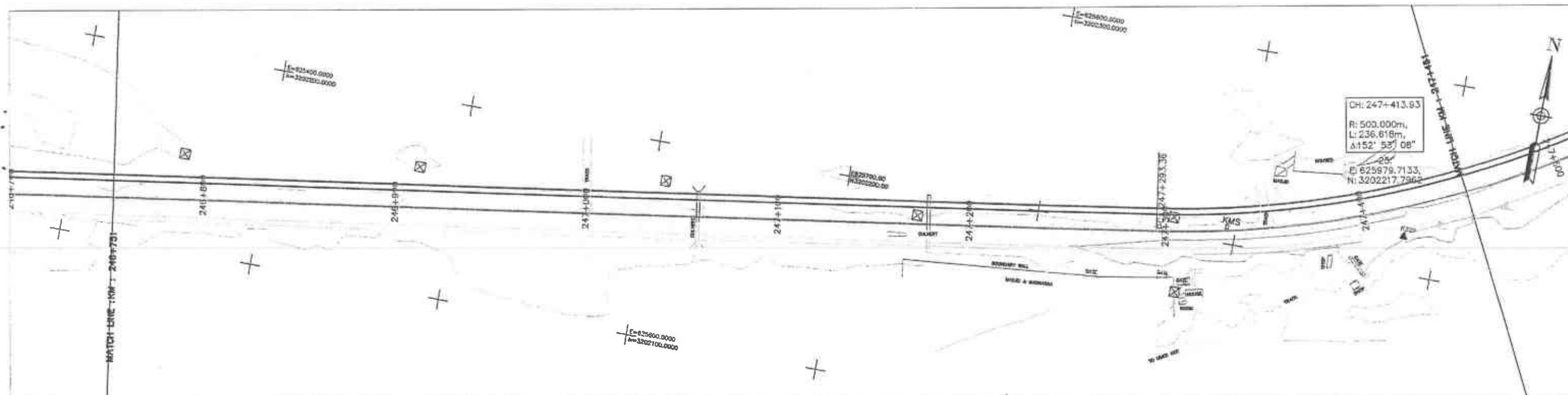
3005/102/TD/P&P353



Horizontal Geometry	CURVE R=5000.00																		TWOCH 110E88																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
Superelevation																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
Design Levels			94.513		94.521		94.530		94.538		94.548		94.554		94.561		94.569		94.576		94.583		94.590		94.598		94.605		94.612		94.620		94.627		94.634		94.642		94.649		94.656		94.664		94.671		94.678		94.686		94.693		94.700		94.708		94.715		94.722		94.729		94.737		94.744		94.751		94.759																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
Ground Levels	94.503	94.511	94.527	94.538	94.551	94.568	94.587	94.606	94.627	94.649	94.673	94.699	94.728	94.759	94.792	94.827	94.864	94.903	94.944	94.987	95.032	95.079	95.128	95.178	95.230	95.283	95.338	95.394	95.452	95.511	95.572	95.634	95.698	95.764	95.831	95.899	95.969	96.040	96.112	96.185	96.259	96.334	96.410	96.487	96.565	96.644	96.724	96.805	96.887	96.970	97.054	97.139	97.225	97.312	97.400	97.489	97.579	97.670	97.762	97.855	97.949	98.044	98.140	98.237	98.335	98.434	98.534	98.635	98.737	98.840	98.944	99.049	99.155	99.262	99.370	99.479	99.589	99.699	99.810	99.922	100.035	100.149	100.264	100.380	100.497	100.615	100.734	100.854	100.975	101.097	101.220	101.344	101.469	101.595	101.722	101.850	101.979	102.109	102.240	102.372	102.505	102.639	102.774	102.910	103.047	103.185	103.324	103.464	103.605	103.747	103.890	104.034	104.179	104.325	104.472	104.620	104.769	104.920	105.072	105.225	105.379	105.534	105.690	105.847	106.005	106.164	106.324	106.485	106.647	106.810	106.975	107.141	107.308	107.476	107.645	107.816	107.988	108.161	108.336	108.512	108.689	108.867	109.046	109.226	109.407	109.589	109.772	109.956	110.141	110.327	110.514	110.702	110.891	111.081	111.272	111.465	111.659	111.854	112.050	112.248	112.447	112.647	112.848	113.050	113.254	113.459	113.665	113.872	114.080	114.290	114.501	114.713	114.926	115.140	115.356	115.573	115.791	116.010	116.230	116.451	116.673	116.896	117.120	117.345	117.571	117.798	118.026	118.255	118.485	118.716	118.948	119.181	119.415	119.650	119.886	120.123	120.361	120.600	120.840	121.081	121.323	121.566	121.810	122.055	122.301	122.548	122.796	123.045	123.295	123.546	123.798	124.051	124.305	124.560	124.816	125.073	125.331	125.590	125.850	126.111	126.373	126.636	126.900	127.165	127.431	127.698	127.966	128.235	128.505	128.776	129.048	129.321	129.595	129.870	130.146	130.423	130.701	130.980	131.260	131.541	131.823	132.106	132.390	132.675	132.961	133.248	133.536	133.825	134.115	134.406	134.698	134.991	135.285	135.580	135.876	136.173	136.471	136.770	137.070	137.371	137.673	137.976	138.280	138.585	138.891	139.198	139.506	139.815	140.125	140.436	140.748	141.061	141.375	141.690	142.006	142.323	142.641	142.960	143.280	143.601	143.923	144.246	144.570	144.895	145.221	145.548	145.876	146.205	146.535	146.866	147.198	147.531	147.865	148.200	148.536	148.873	149.211	149.550	149.890	150.231	150.573	150.916	151.260	151.605	151.951	152.298	152.646	152.995	153.345	153.696	154.048	154.401	154.755	155.110	155.466	155.823	156.181	156.540	156.900	157.261	157.623	157.986	158.350	158.715	159.081	159.448	159.816	160.185	160.555	160.926	161.298	161.671	162.045	162.420	162.796	163.173	163.551	163.930	164.310	164.691	165.073	165.456	165.840	166.225	166.611	167.000	167.390	167.781	168.173	168.566	168.960	169.355	169.751	170.148	170.546	170.945	171.345	171.746	172.148	172.551	172.955	173.360	173.766	174.173	174.581	174.990	175.400	175.811	176.223	176.636	177.050	177.465	177.881	178.298	178.716	179.135	179.555	179.976	180.398	180.821	181.245	181.670	182.096	182.523	182.951	183.380	183.810	184.241	184.673	185.106	185.540	185.975	186.411	186.848	187.286	187.725	188.165	188.606	189.048	189.491	189.935	190.380	190.826	191.273	191.721	192.170	192.620	193.071	193.523	193.976	194.430	194.885	195.341	195.798	196.256	196.715	197.175	197.636	198.098	198.561	199.025	199.490	199.956	200.423	200.891	201.360	201.830	202.301	202.773	203.246	203.720	204.195	204.671	205.148	205.626	206.105	206.585	207.066	207.548	208.031	208.515	209.000	209.486	209.973	210.461	210.950	211.440	211.931	212.423	212.916	213.410	213.905	214.401	214.898	215.396	215.895	216.395	216.896	217.398	217.901	218.405	218.910	219.416	219.923	220.431	220.940	221.450	221.961	222.473	222.986	223.500	224.015	224.531	225.048	225.566	226.085	226.605	227.126	227.648	228.171	228.695	229.220	229.746	230.273	230.801	231.330	231.860	232.391	232.923	233.456	233.990	234.525	235.061	235.598	236.136	236.675	237.215	237.756	238.298	238.841	239.385	239.930	240.476	241.023	241.571	242.120	242.670	243.221	243.773	244.326	244.880	245.435	245.991	246.548	247.106	247.665	248.225	248.786	249.348	249.911	250.475	251.040	251.606	252.173	252.741	253.310	253.880	254.451	255.023	255.596	256.170	256.745	257.321	257.898	258.476	259.055	259.635	260.216	260.798	261.381	261.965	262.550	263.136	263.723	264.311	264.900	265.490	266.081	266.673	267.266	267.860	268.455	269.051	269.648	270.246	270.845	271.445	272.046	272.648	273.251	273.855	274.460	275.066	275.673	276.281	276.890	277.500	278.111	278.723	279.336	279.950	280.565	281.181	281.798	282.416	283.035	283.655	284.276	284.898	285.521	286.145	286.770	287.396	288.023	288.651	289.280	289.910	290.541	291.173	291.806	292.440	293.075	293.711	294.348	294.986	295.625	296.265	296.906	297.548	298.191	298.835	299.480	300.126	300.773	301.421	302.070	302.720	303.371	304.023	304.676	305.330	305.985	306.641	307.298	307.956	308.615	309.275	309.936	310.598	311.261	311.925	312.590	313.256	313.923	314.591	315.260	315.930	316.601	317.273	317.946	318.620	319.295	319.971	320.648	321.326	322.005	322.685	323.366	324.048	324.731	325.415	326.100	326.786	327.473	328.161	328.850	329.540	330.231	330.923	331.616	332.310	333.005	333.701	334.398	335.096	335.795	336.495	337.196	337.898	338.601	339.305	340.010	340.716	341.423	342.131	342.840	343.550	344.261	344.973	345.686	346.399	347.113	347.828	348.544	349.261	350.000	350.740	351.481	352.223	352.966	353.710	354.455	355.201	355.948	356.696	357.445	358.195	358.946	359.698	360.451	361.205	361.960	362.716	363.473	364.231	364.990	365.750	366.511	367.273	368.036	368.800	369.565	370.331	371.098	371.866	372.635	373.405	374.176	374.948	375.721	376.495	377.270	378.046	378.823	379.601	380.380	381.160	381.941	382.723	383.506	384.290	385.075	385.861	386.648	387.436	388.225	389.015	389.806	390.598	391.391	392.185	392.980	393.776	394.573	395.371	396.170	396.970	397.771	398.573	399.376	400.180	400.985	401.791	402.598	403.406	404.215	405.025	405.836	406.648	407.461	408.275	409.090	409.906	410.723	411.541	412.360	413.180	414.001	414.823	415.646	416.470	417.295	418.121	418.948	419.776	420.605	421.435	422.266	423.098	423.931	424.765	425.600	426.436	427.273	428.111	428.950	429.790	430.631	431.473	432.316	433.160	434.005	434.851	435.698	436.546	437.395	438.245	439.096	439.948	440.801	441.655	442.510	443.366	444.223	445.081	445.940	446.800	447.661	448.523	449.386	450.250	451.115	451.981	452.848	453.716	454.585	455.455	456.326	457.198	458.071	458.945	459.820	460.696	461.573	462.451	463.330	464.210	465.091	465.973	466.856	467.740	468.625	469.511	470.398	471.286	472.175	473.065	473.956	474.848	475.741	476.635	477.530	478.426	479.323	480.221	481.120	482.020	482.921	483.823	484.726	485.630	486.535	487.441	488.348	489.256	490.165	491.075	491.986	492.898	493.811	494.725	495.640	496.556	497.473	498.391	499.310	500.230	501.151	502.073	503.000	503.928	504.857	505.787	506.718	507.650	508.583	509.517	510.452	511.388	512.325	513.263	514.202	515.142	516.083	517.025	517.968	518.912	519.857	520.803	521.750	522.698	523.647	524.597	525.548	526.500	527.453	528.407	529.362	530.318	531.275	532.233	533.192	534.152	535.113	536.075	537.038	538.002	538.967	539.933	540.900	541.868	542.837	543.807	544.778	545.750	546.723	547.697	548.672	549.648	550.625	551.603	552.582	553.562	554.543	555.525	556.508	557.492	558.477	559.463	560.450	561.438	562.427	563.417	564.408	565.400	566.393	567.387	568.382	569.378	570.375	571.373	572.372	573.372	574.373	575.375	576.378	577.382	578.387	579.393	580.399	581.406	582.414	583.423	584.432	585.442	586.453	587.464	588.476	589.488	590.501	591.515	592.530	593.545	594.561	595.578	596.595	597.613	598.631	599.650	600.670	601.691	602.712	603.734	604.757	605.781	606.806	607.831	608.857	609.884	610.911	611.940	612.969	613.999	615.030	616.061	617.093	618.126	619.160	620.195	621.231	622.267	623.304	624.342	625.381	626.421	627.462	628.504	629.547	

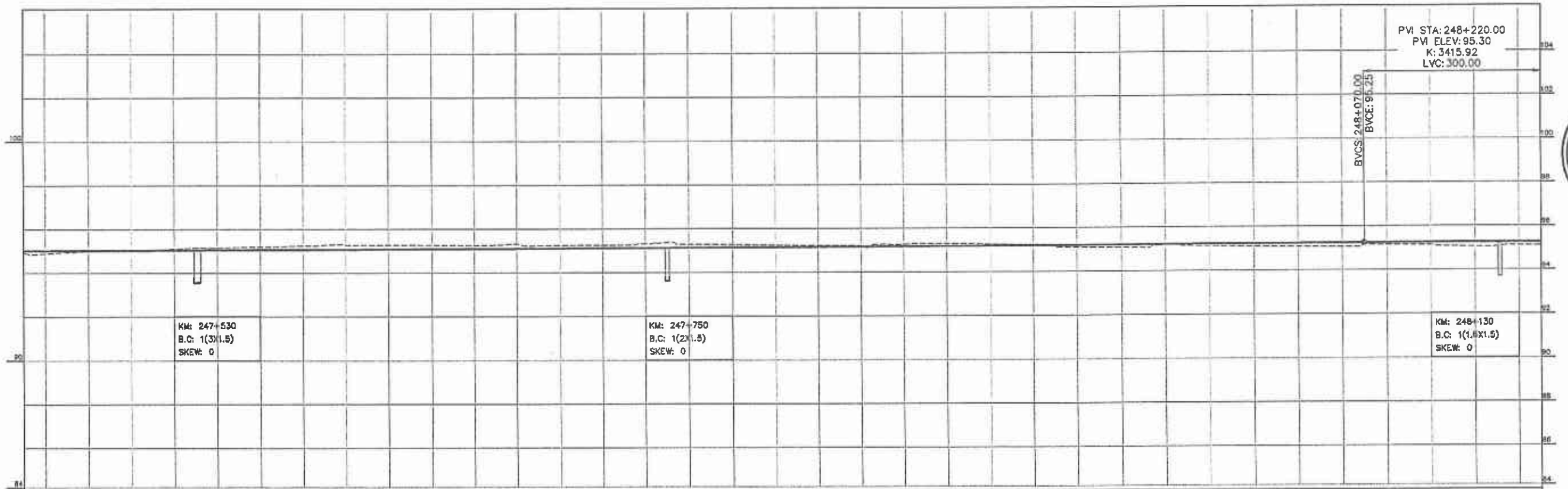
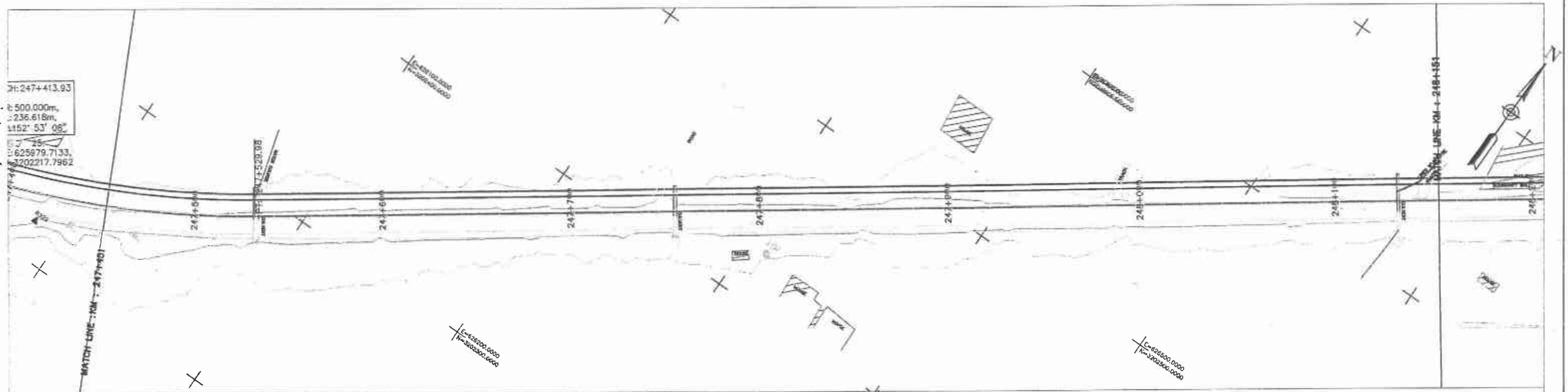


NATIONAL HIGHWAY AUTHORITY
 P&CA
 GOVT. OF PAKISTAN



Horizontal Geometry	TANGENT 1108.88																												CURVE R=500.00									
Superelevation																																						
Design Levels	94.766	94.773	94.781	94.788	94.795	94.803	94.810	94.817	94.825	94.832	94.839	94.846	94.854	94.861	94.868	94.876	94.883	94.890	94.898	94.905	94.912	94.920	94.927	94.934	94.942	94.949	94.956	94.964	94.971	94.978	94.985	94.993	95.000	95.007	95.015			
Ground Levels	94.650	94.675	94.757	94.772	94.702	94.737	94.741	94.748	94.760	94.783	94.784	94.786	94.799	94.783	94.784	94.785	94.796	94.796	94.806	94.817	94.763	94.638	94.709	94.731	94.757	94.782	94.586	94.531	94.523	94.691	94.763	94.736	94.770	94.767	94.933	94.817		
Chamages	246+750	246+800	246+850	246+900	246+950	247+000	247+050	247+100	247+150	247+200	247+250	247+300	247+350	247+400	247+450																							



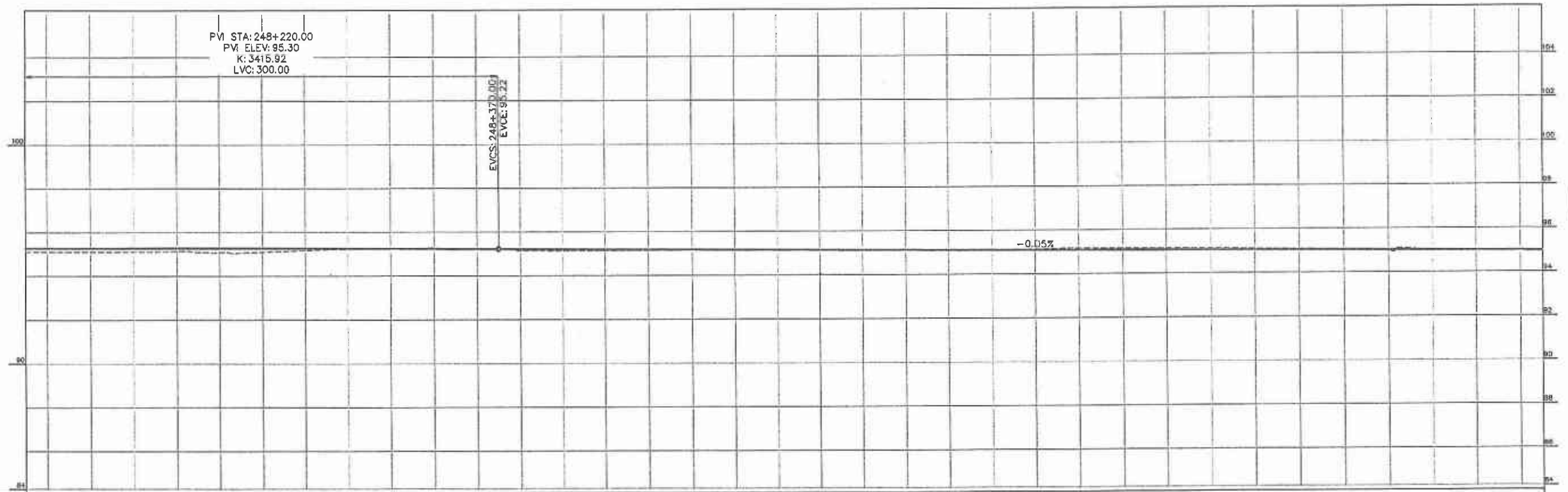
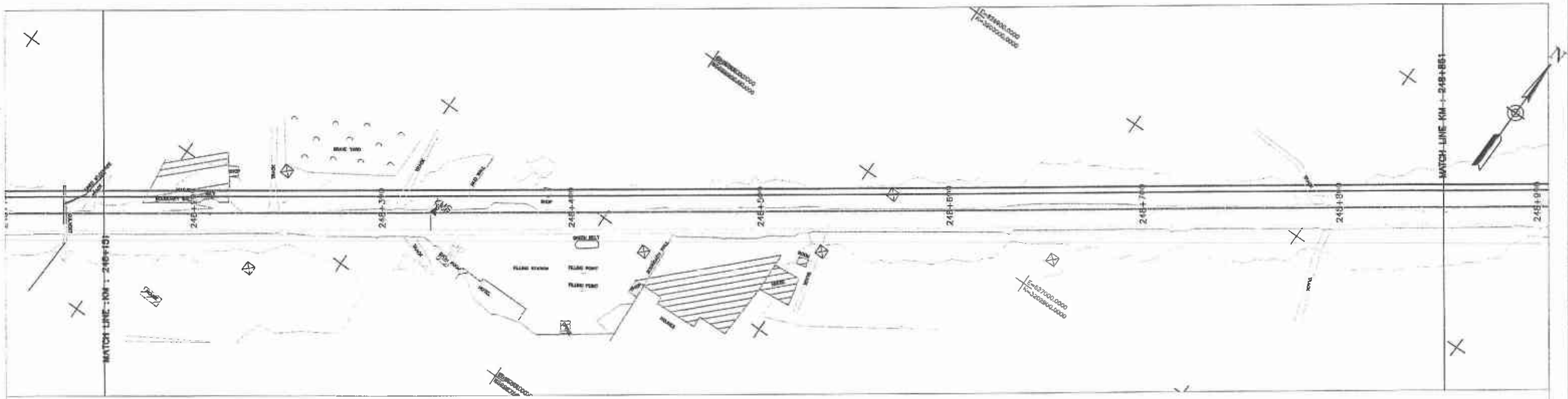


Horizontal Geometry	CURVE R=500.00																			
Superelevation	TANGENT 154.35																			
Design levels	95.022	95.029	95.037	95.044	95.051	95.059	95.066	95.073	95.081	95.088	95.095	95.102	95.110	95.117	95.124	95.132	95.139	95.146	95.154	95.161
Ground Levels	94.909	94.890	94.991	95.021	95.101	95.158	95.200	95.241	95.278	95.268	95.251	95.252	95.325	95.242	95.255	95.321	95.290	95.270	95.246	95.223
Drainage	247+450	247+500	247+600	247+700	247+800	247+900	248+000	248+100	248+150											



REVISIONS

GOVERNMENT OF PAKISTAN MINISTRY OF COMMUNICATIONS NATIONAL HIGHWAY AUTHORITY	NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD.		DRAWN M. A. NAIDEEM AWAN	RATODERO ~ RAJANPUR ROAD (SECTION-IV) (KASHMORE TO RAJANPUR)	PLAN & PROFILE KM: 247+450 ~ KM: 248+150 SCALE: 1:2000	
			SUBMITTED RECOMMENDED CHD./VER.		REV. DATE DESCRIPTION APPROVED APPROVED	DATE: JUNE, 2018 DWG NO.: 3905/102/TD/P&P356



Horizontal Geometry		TANGENT 1541.35																																																																																									
Superelevation																																																																																											
Design Levels	95.268 95.101 95.105 95.268 95.108 95.128 95.076 95.096 95.168 95.241 95.265 95.279 95.250 95.146 95.139 95.135 95.134 95.163 95.153 95.154 95.148 95.116 95.109 95.106 95.103 95.129 95.168 95.154 95.149 95.144 95.111 95.074 95.048 94.983 95.019 95.003 94.998 94.982	95.268 95.101 95.105 95.268 95.108 95.128 95.076 95.096 95.168 95.241 95.265 95.279 95.250 95.146 95.139 95.135 95.134 95.163 95.153 95.154 95.148 95.116 95.109 95.106 95.103 95.129 95.168 95.154 95.149 95.144 95.111 95.074 95.048 94.983 95.019 95.003 94.998 94.982	95.265 95.262 95.257 95.252 95.245 95.237 95.228 95.218 95.208 95.198 95.187 95.177 95.167 95.156 95.146 95.136 95.126 95.116 95.105 95.095 95.085 95.074 95.064 95.054 95.044 95.034 95.023 95.013 95.003 94.992 94.982																																																																																								
Ground Levels	95.102 95.101 95.105 95.108 95.128 95.076 95.096 95.168 95.241 95.265 95.279 95.250 95.146 95.139 95.135 95.134 95.163 95.153 95.154 95.148 95.116 95.109 95.106 95.103 95.129 95.168 95.154 95.149 95.144 95.111 95.074 95.048 94.983 95.019 95.003 94.998 94.982	95.102 95.101 95.105 95.108 95.128 95.076 95.096 95.168 95.241 95.265 95.279 95.250 95.146 95.139 95.135 95.134 95.163 95.153 95.154 95.148 95.116 95.109 95.106 95.103 95.129 95.168 95.154 95.149 95.144 95.111 95.074 95.048 94.983 95.019 95.003 94.998 94.982	95.102 95.101 95.105 95.108 95.128 95.076 95.096 95.168 95.241 95.265 95.279 95.250 95.146 95.139 95.135 95.134 95.163 95.153 95.154 95.148 95.116 95.109 95.106 95.103 95.129 95.168 95.154 95.149 95.144 95.111 95.074 95.048 94.983 95.019 95.003 94.998 94.982	95.102 95.101 95.105 95.108 95.128 95.076 95.096 95.168 95.241 95.265 95.279 95.250 95.146 95.139 95.135 95.134 95.163 95.153 95.154 95.148 95.116 95.109 95.106 95.103 95.129 95.168 95.154 95.149 95.144 95.111 95.074 95.048 94.983 95.019 95.003 94.998 94.982																																																																																							
Chainage	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 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248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248+500 248+600 248+700 248+800 248+850	248+150 248+200 248+300 248+400 248



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GOVERNMENT OF PAKISTAN
MINISTRY OF COMMUNICATIONS
NATIONAL HIGHWAY AUTHORITY

NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD.

Project Manager
M/S TOSAN

REV. DATE DESCRIPTION APPROVED APPROVED

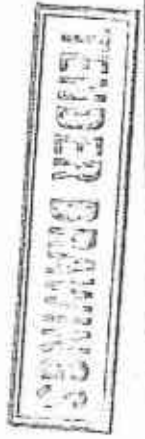
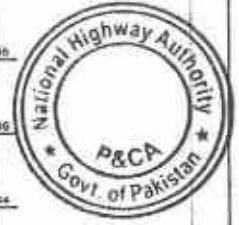
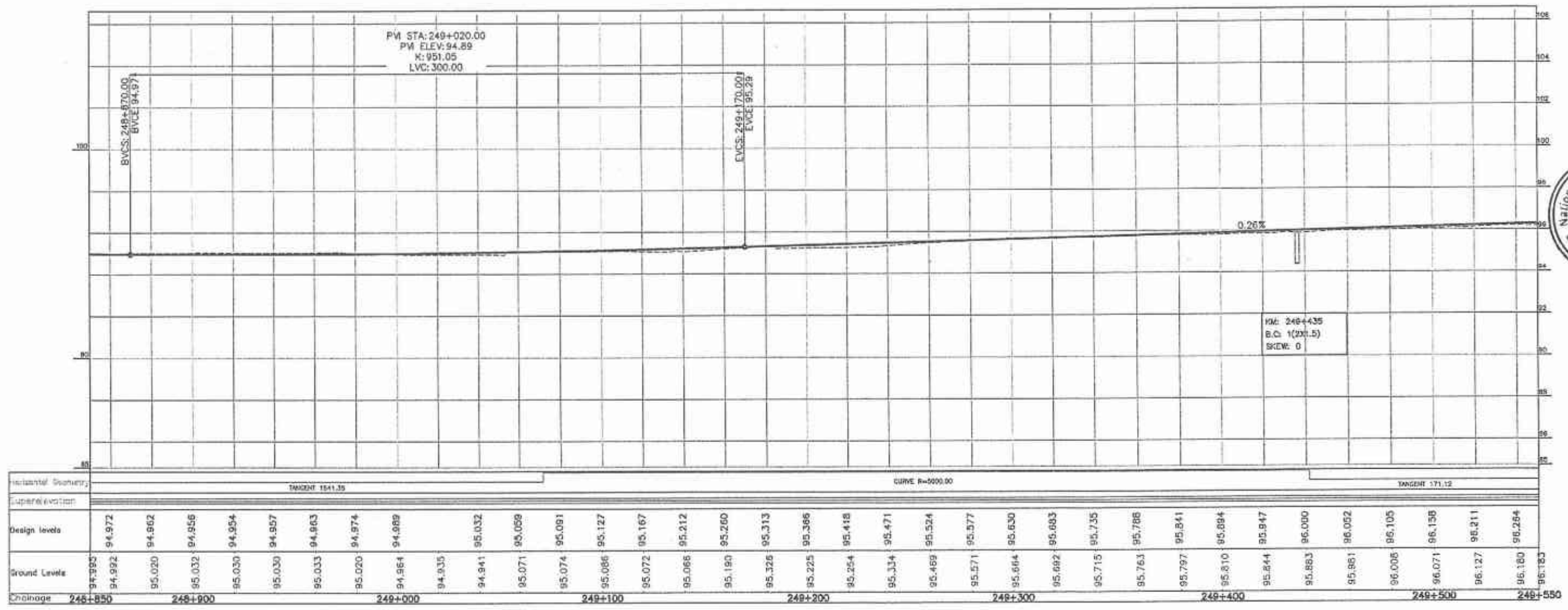
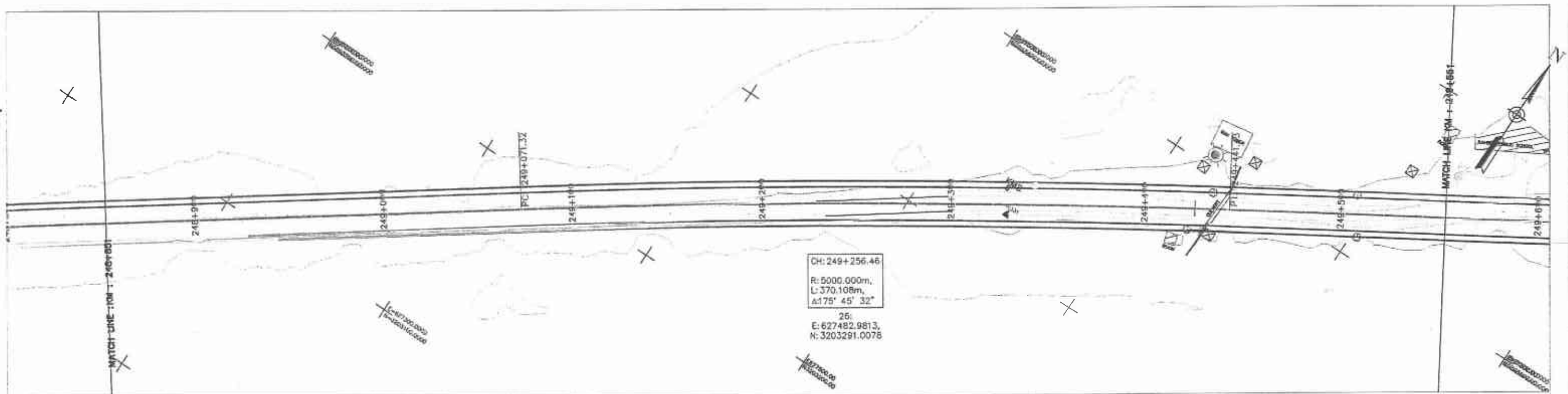
RATODERO ~ RAJANPUR ROAD
(SECTION-V)
(ROJHAN TO RAJANPUR)

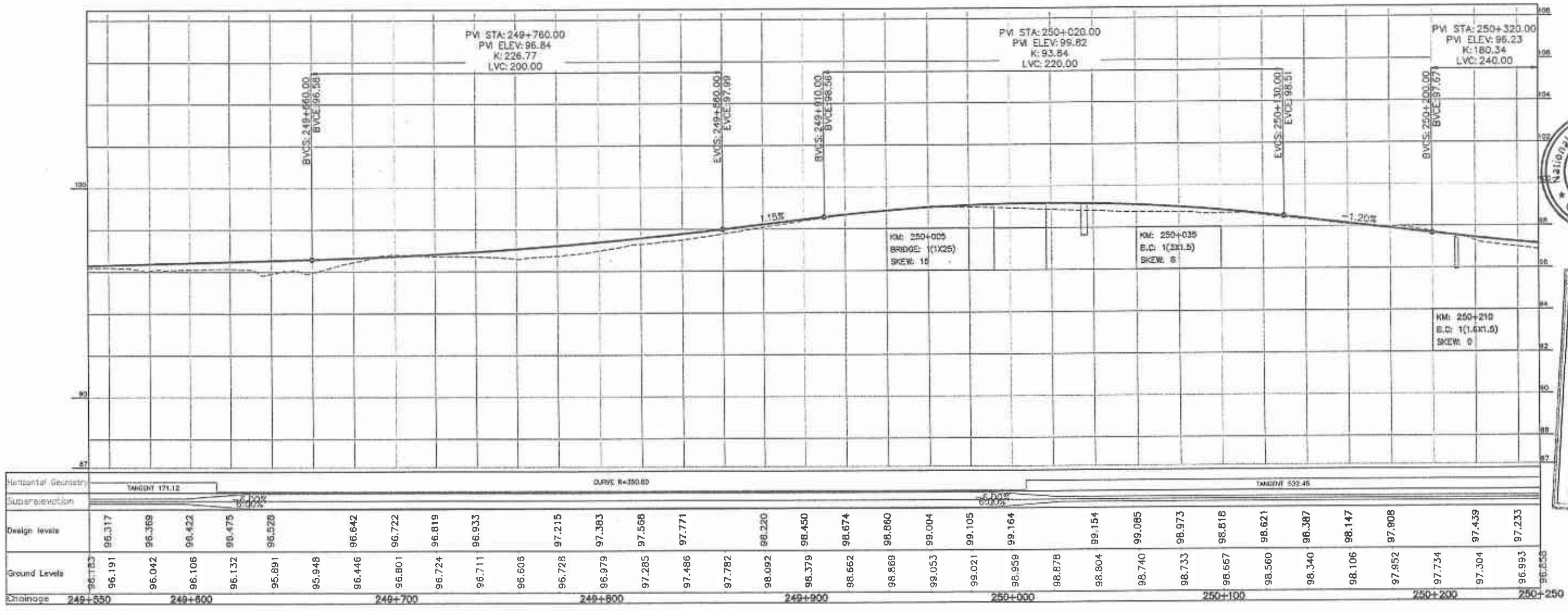
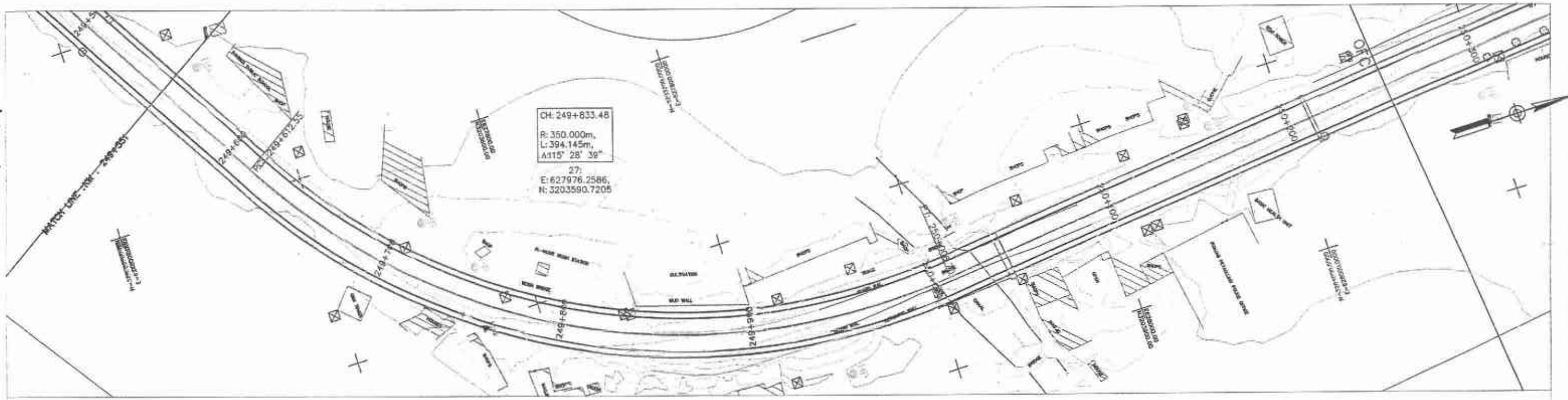
PLAN & PROFILE
KM: 248+150 ~ KM: 248+850

DATE: MARCH 2020

SCALE: 1:2000

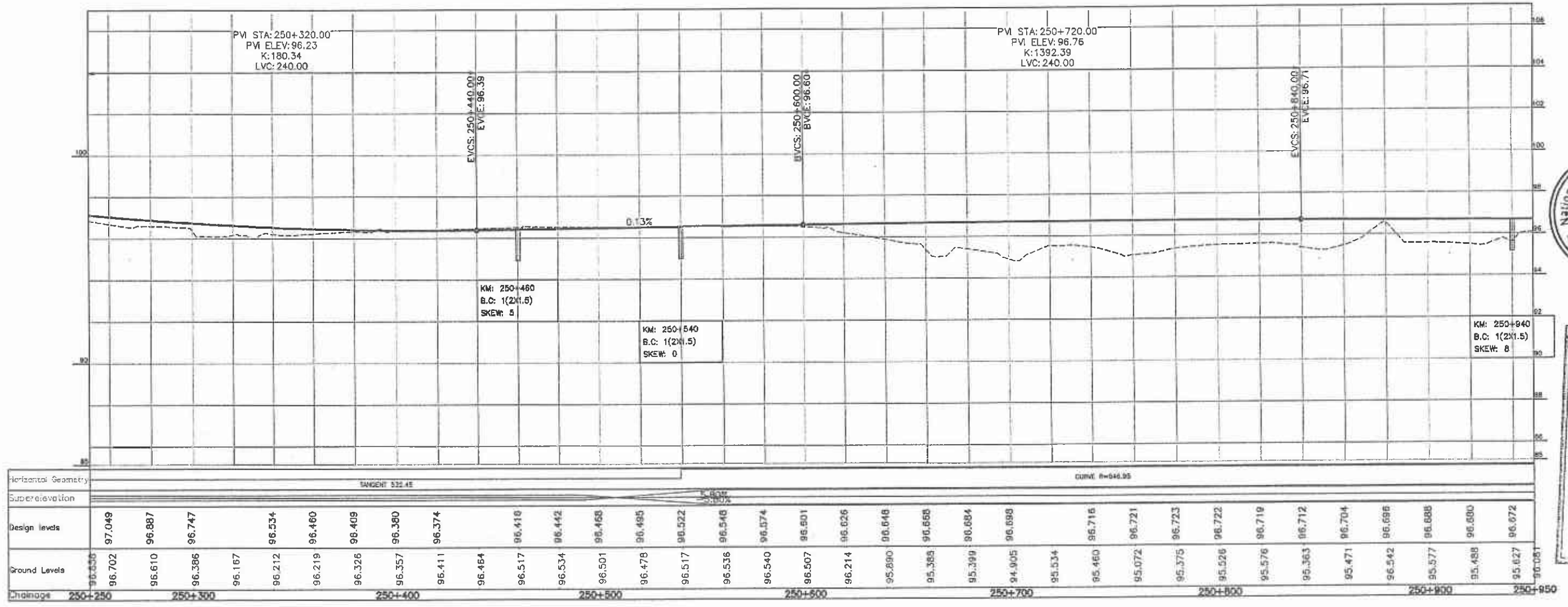
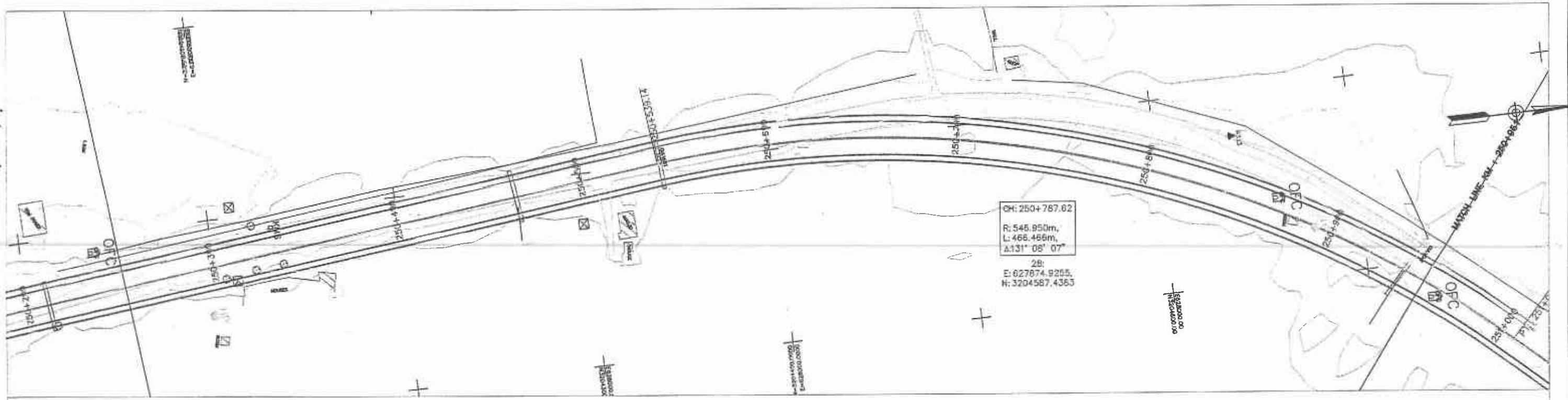
DWG NO.: 3905/102/TD/P&P357





DRAWING NO. 3905/102/TD/P&P-359

GOVERNMENT OF PAKISTAN MINISTRY OF COMMUNICATIONS NATIONAL HIGHWAY AUTHORITY	NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD.	JAWAD UL HAQ Project Manager M/S NEEPAR	DRAWN	RATODERO ~ RAJANPUR ROAD (SECTION-V) (ROJHAN TO RAJANPUR)	PLAN & PROFILE KM: 249+550 ~ KM: 250+250 SCALE: 1:2000	
			SUBMITTED		DATE	DWG NO.
REV.	DATE	DESCRIPTION	APPROVED	CHD./VER.	MARCH 2020	3905/102/TD/P&P-359



100% COMPLETE
 100% VERIFIED
 100% APPROVED

GOVERNMENT OF PAKISTAN
 MINISTRY OF COMMUNICATIONS
 NATIONAL HIGHWAY AUTHORITY

NATIONAL ENGINEERING SERVICES
 PAKISTAN (PVT.) LTD.

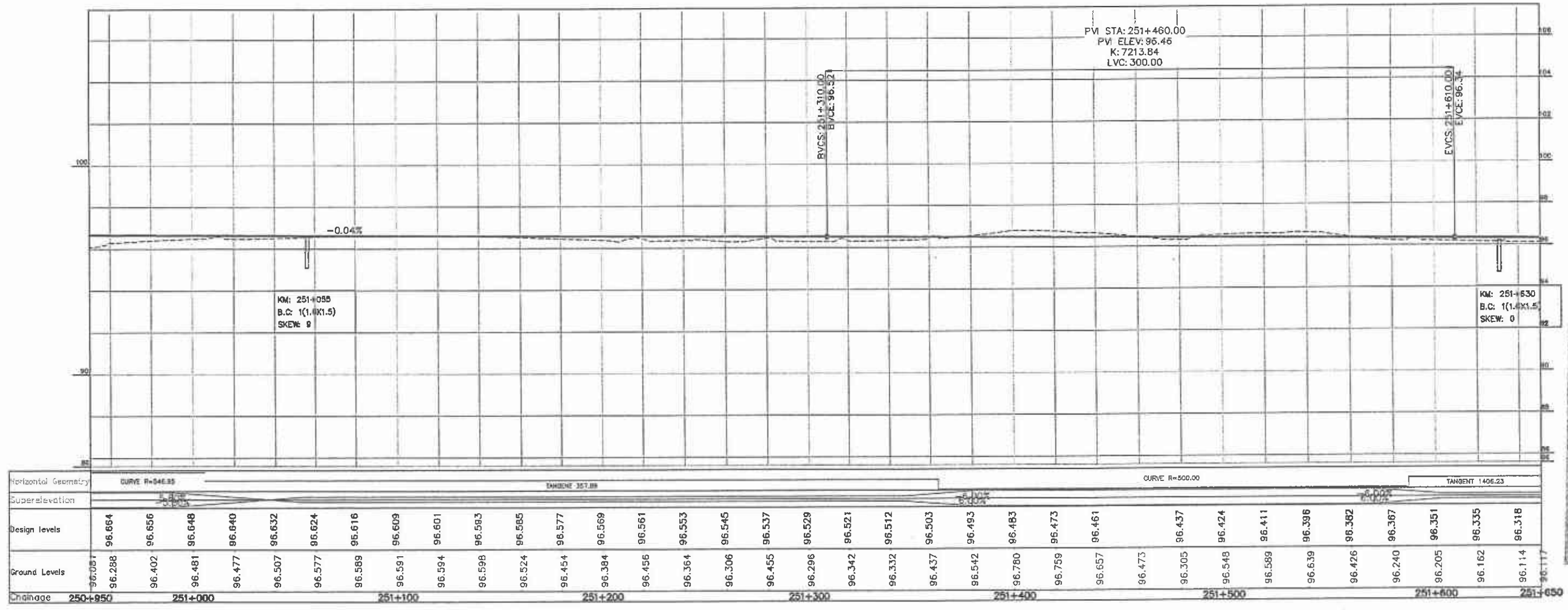
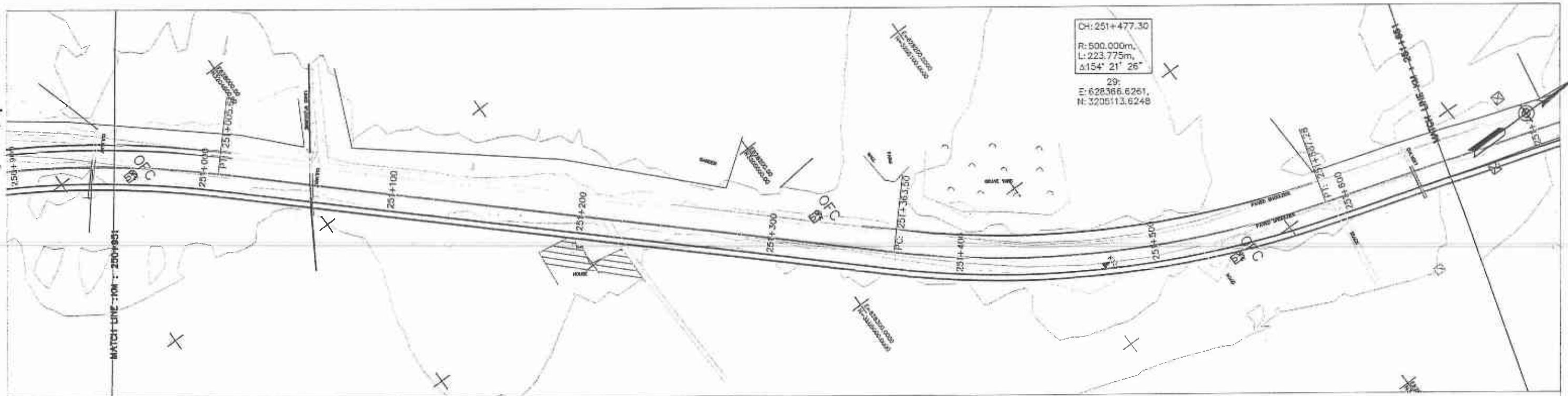
PROJECT MANAGER
 M/S NESPAK

DRAWN
 SUBMITTED
 RECOMMENDED
 CHD./VER.
 APPROVED

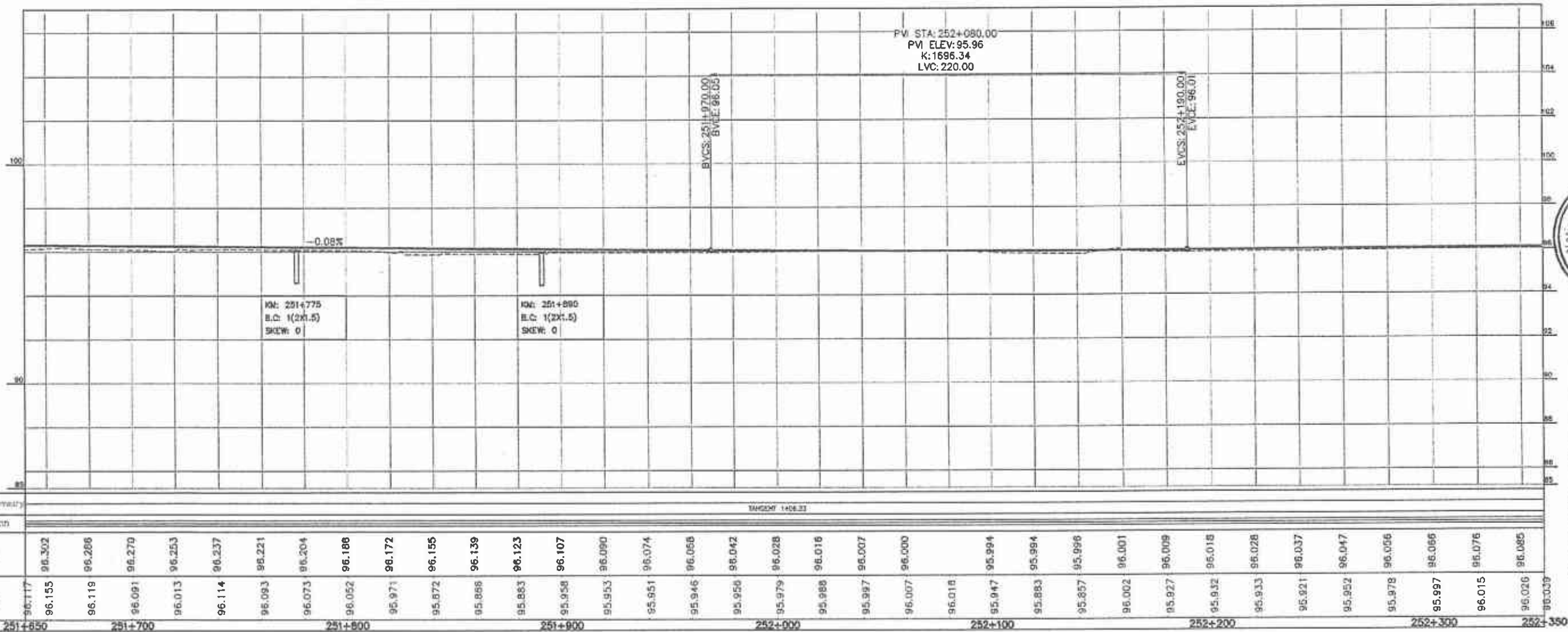
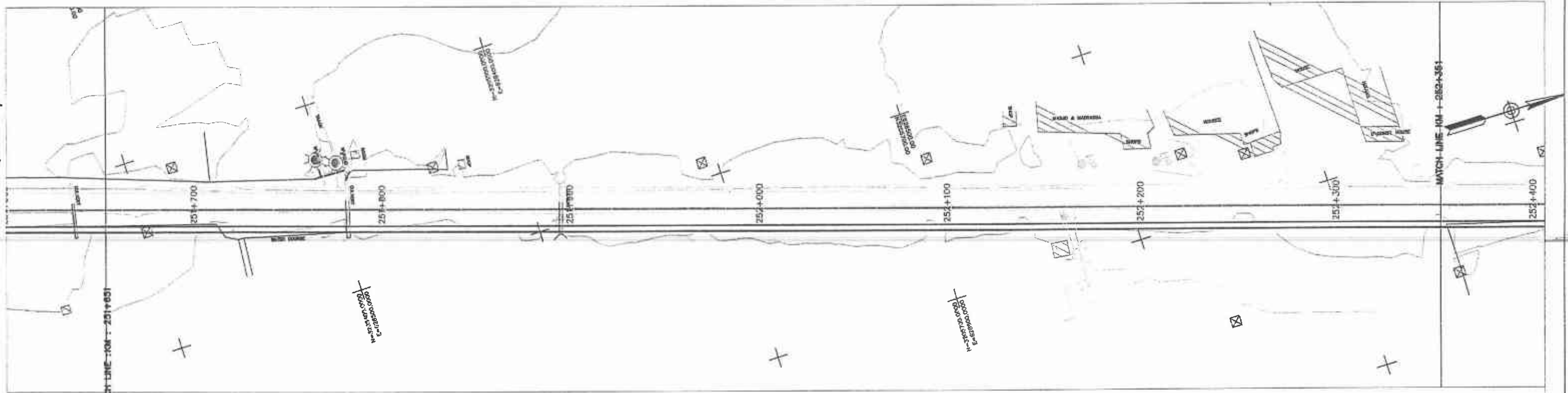
RATODERO ~ RAJANPUR ROAD
 (SECTION-V)
 (ROJHAN TO RAJANPUR)

PLAN & PROFILE
 KM: 250+250 ~ KM: 250+950
 DATE: MARCH 2020

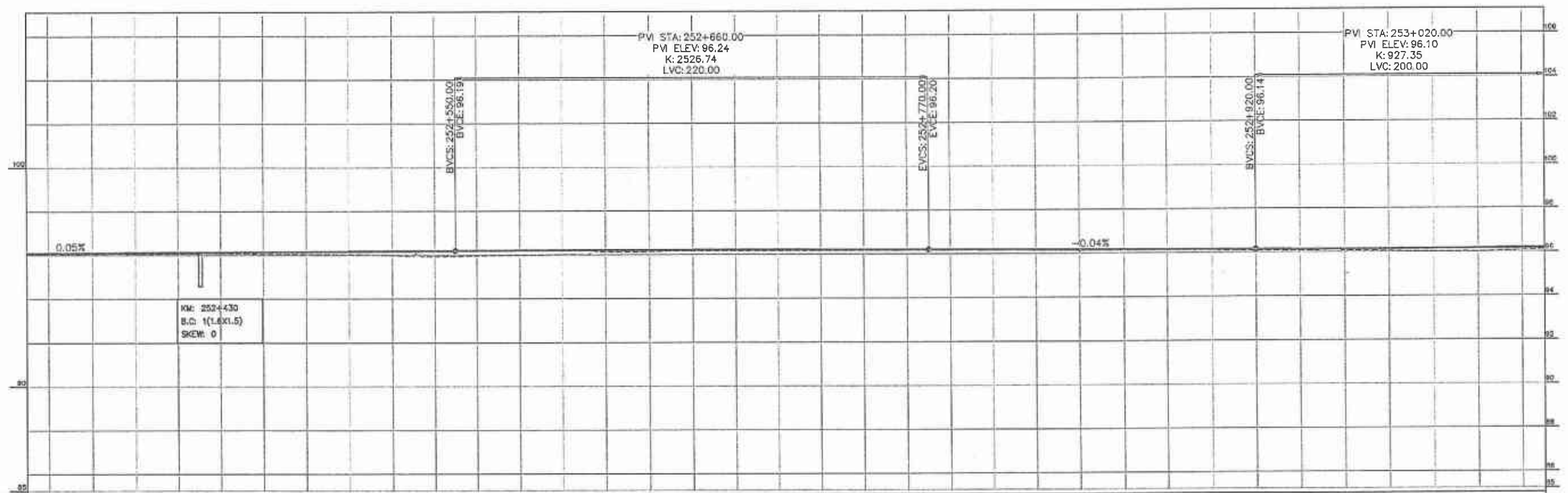
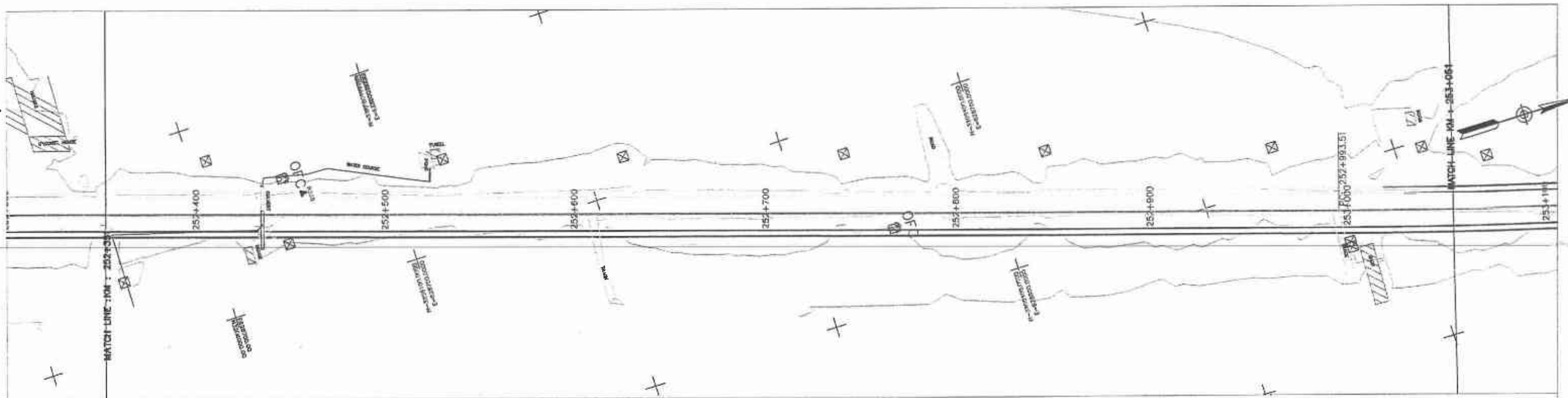
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REVISION

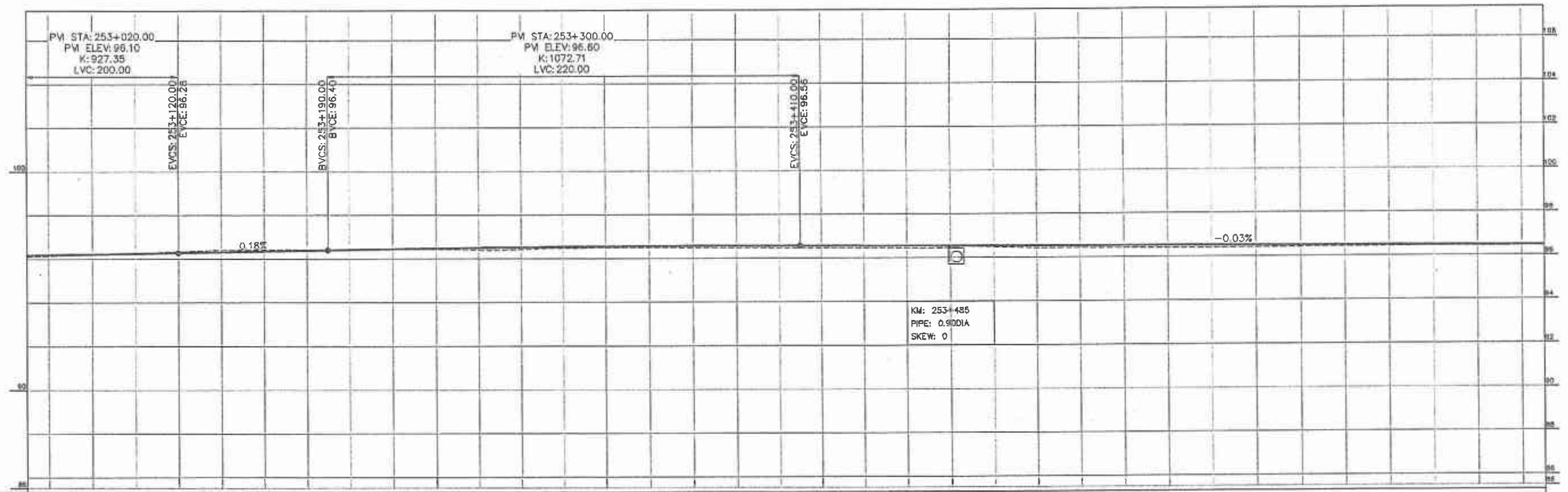
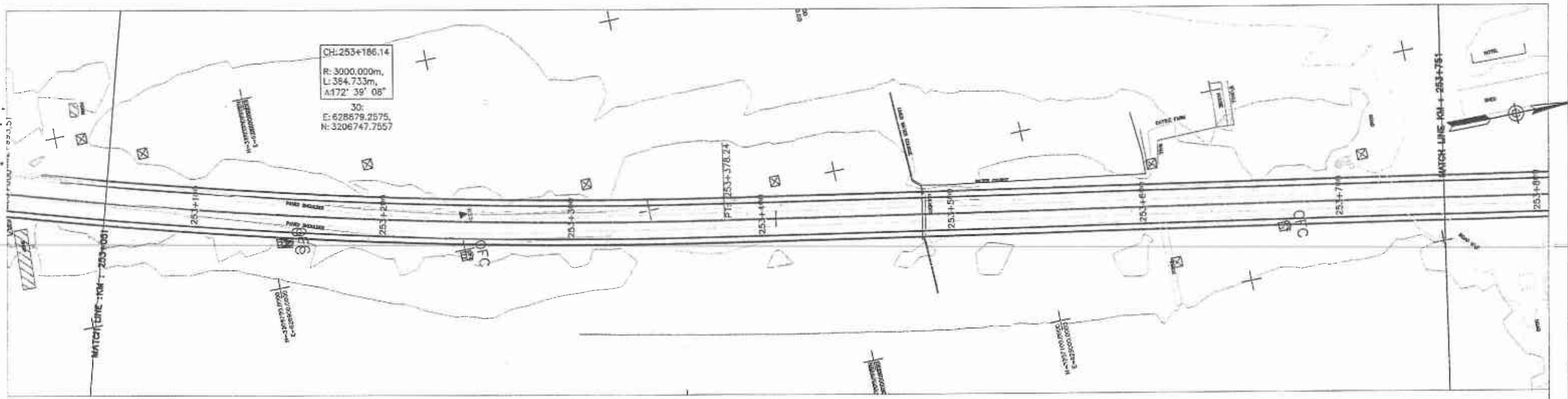


Horizontal Distance	TANGENT 1408.33																			
Superelevation																				
Design Levels	96.302	96.286	96.270	96.253	96.237	96.221	96.204	96.188	96.172	96.155	96.139	96.123	96.107	96.090	96.074	96.058	96.042	96.028	96.016	96.007
Ground Levels	96.117	96.155	96.119	96.091	96.013	96.114	96.093	96.073	96.052	95.971	95.872	95.858	95.883	95.958	95.953	95.951	95.946	95.958	95.979	95.988
Chainage	251+650	251+700	251+750	251+800	251+850	251+900	251+950	252+000	252+050	252+100	252+150	252+200	252+250	252+300	252+350					



Horizontal Geometry	TANGENT 1456.23																			
Superelevation	CURVE R=3000.00																			
Design Levels	96.095	96.105	96.114	96.124	96.134	96.143	96.153	96.163	96.172	96.182	96.191	96.199	96.206	96.211	96.214	96.216	96.215	96.212	96.207	96.201
Ground Levels	96.039	96.052	96.058	96.057	96.063	96.069	96.061	96.038	96.026	95.982	95.931	95.958	95.985	96.011	96.132	96.140	96.162	96.166	96.169	96.172
Chonope	252+350	252+400	252+450	252+500	252+550	252+600	252+650	252+700	252+750	252+800	252+850	252+900	252+950	253+000	253+050	253+100	253+150	253+200	253+250	253+300





Horizontal Geometry	CURVE R=3000.00																TANGENT 2528.18																		
Superelevation																																			
Design Levels	96.180	96.215	96.244	96.312	96.348	96.383	96.418	96.449	96.477	96.502	96.522	96.552	96.561	96.567	96.568	96.568	96.561	96.556	96.550	96.550	96.544	96.538	96.533	96.527	96.522	96.516	96.510	96.505	96.499	96.493	96.488	96.482	96.476	96.471	
Ground Levels	96.100	96.142	96.209	96.255	96.335	96.402	96.414	96.430	96.447	96.441	96.404	96.424	96.479	96.497	96.486	96.478	96.469	96.457	96.451	96.442	96.430	96.475	96.481	96.427	96.420	96.413	96.406	96.399	96.407	96.415	96.426	96.433	96.441	96.438	96.437
Chainage	253+050	253+100	253+150	253+200	253+250	253+300	253+350	253+400	253+450	253+500	253+550	253+600	253+650	253+700	253+750	253+800	253+850	253+900	253+950	254+000	254+050	254+100	254+150	254+200	254+250	254+300	254+350	254+400	254+450	254+500	254+550	254+600	254+650	254+700	254+750



DRAWN BY:
 CHECKED BY:
 DATE:

GOVERNMENT OF PAKISTAN
MINISTRY OF COMMUNICATIONS
NATIONAL HIGHWAY AUTHORITY

NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD.

Project Manager
M/S NEE PAR

REV.	DATE	DESCRIPTION	APPROVED

DRAWN
SUBMITTED
RECOMMENDED
CHD./VER.

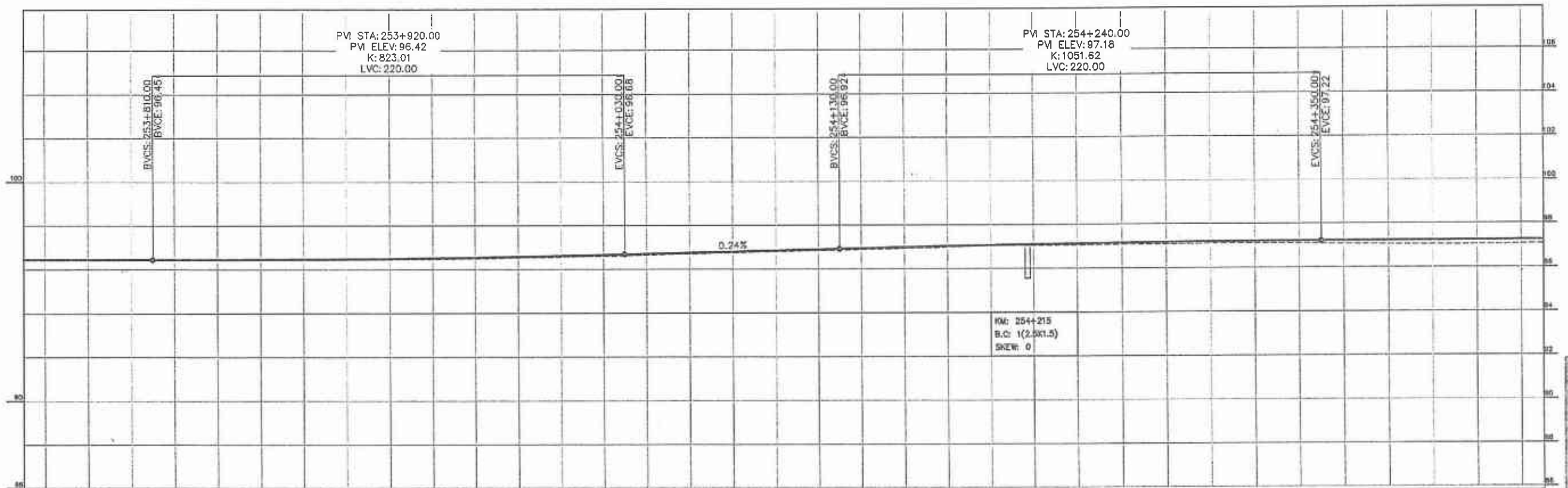
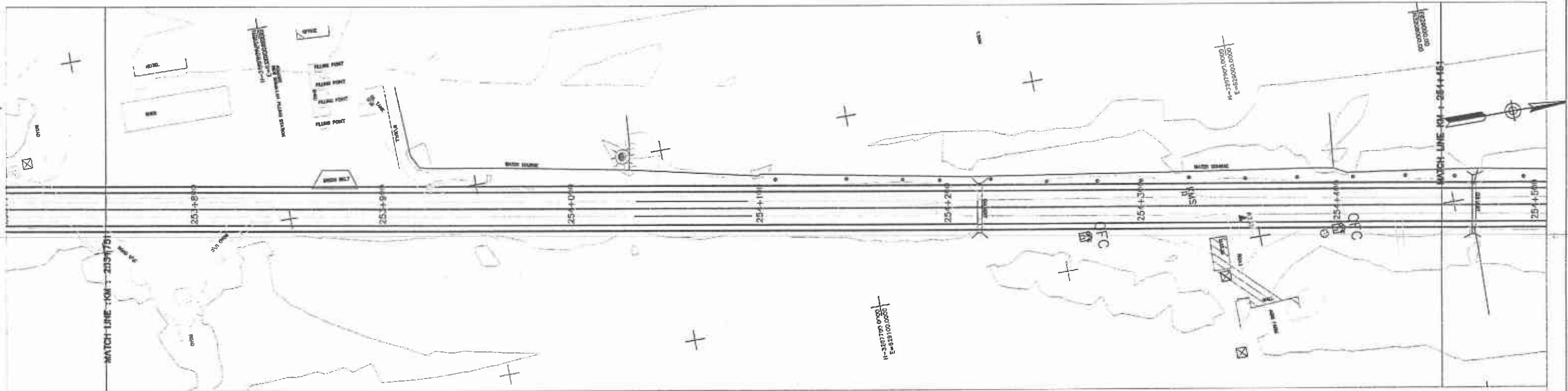
RATODERO ~ RAJANPUR ROAD
(SECTION-V)
(ROJHAN TO RAJANPUR)

PLAN & PROFILE
KM: 253+050 ~ KM: 253+750

SCALE
1:2000

DATE
MARCH 2020

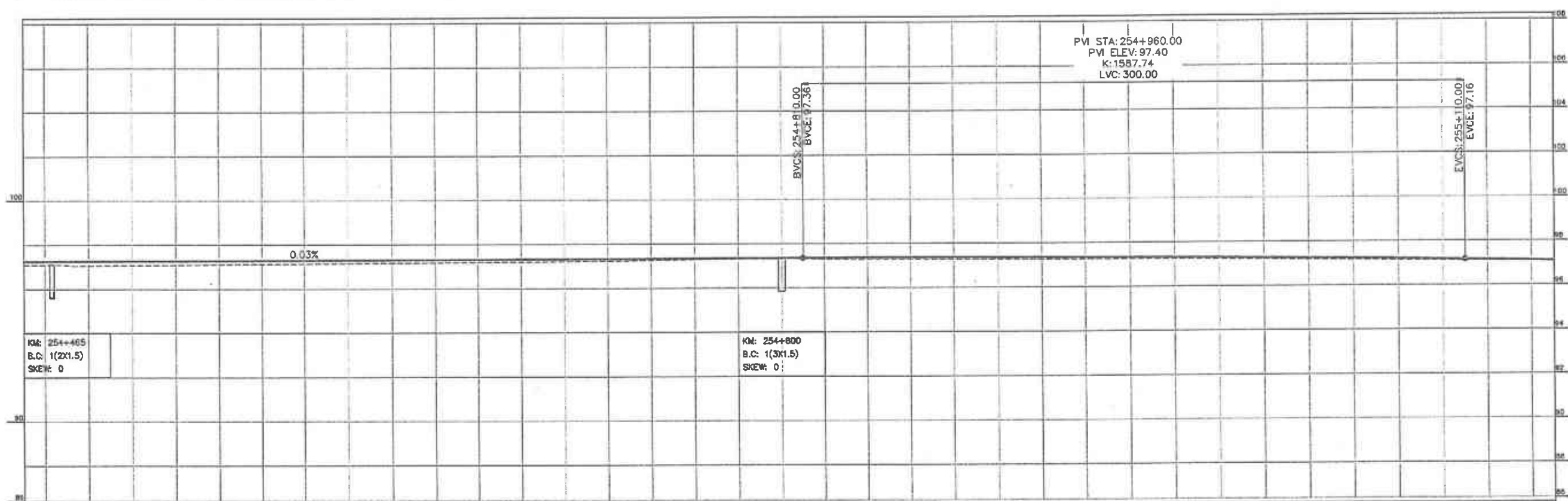
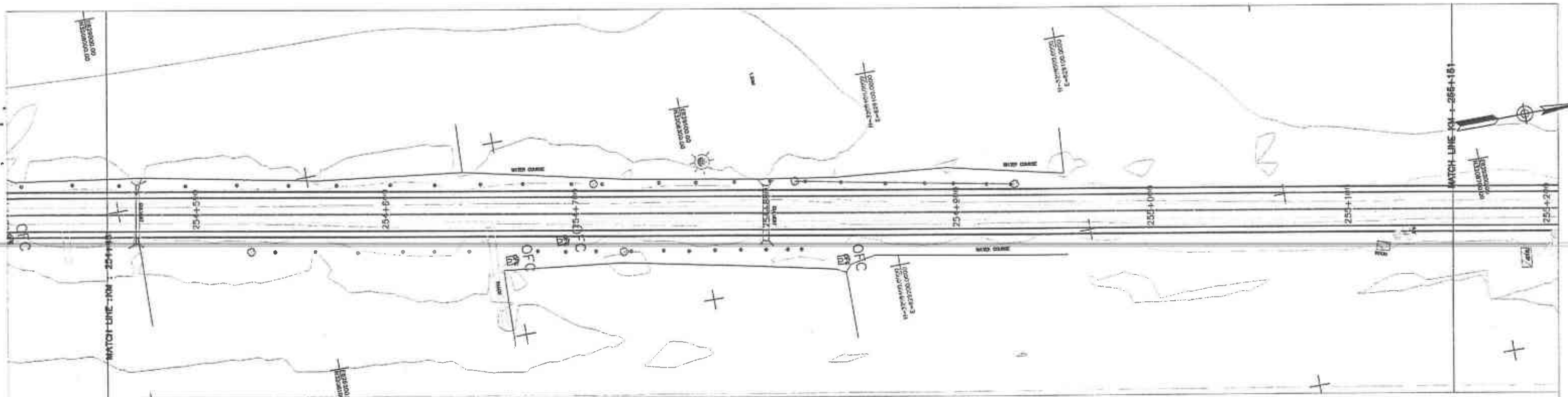
DWG NO.
3905/102/TD/P&P364



Horizontal Geometry		TANGENT 3024.18																			
Superelevation																					
Design Levels		96.465	96.460	96.454	96.449	96.444	96.438	96.432	96.426	96.420	96.414	96.408	96.402	96.396	96.390	96.384	96.378	96.372	96.366	96.360	96.354
Ground Levels		96.436	96.436	96.437	96.439	96.443	96.447	96.451	96.456	96.462	96.469	96.477	96.485	96.493	96.500	96.508	96.516	96.524	96.532	96.540	96.548
Chainage		253+750	253+800	253+850	253+900	253+950	254+000	254+050	254+100	254+150	254+200	254+250	254+300	254+350	254+400	254+450					

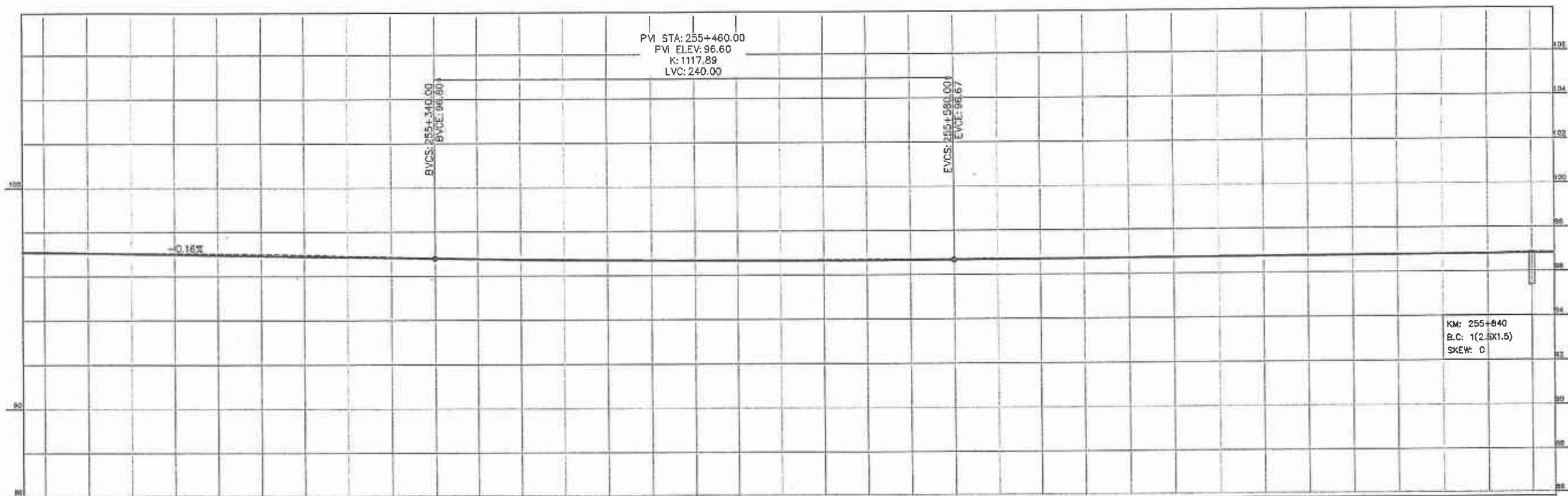
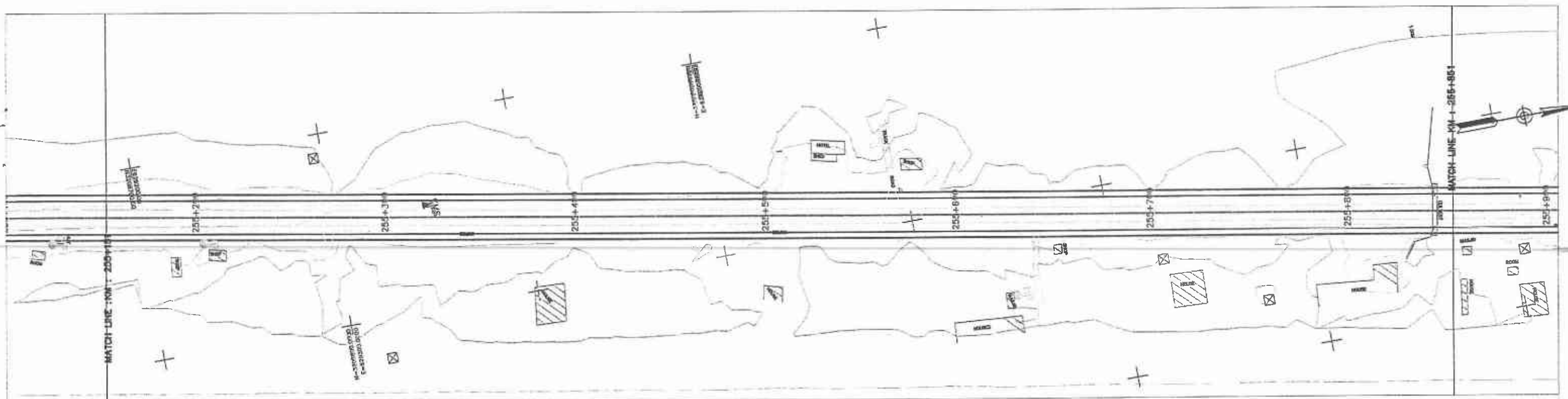


253+750 254+450



Horizontal Geometry	TANGENT 3828.16																		
Superelevation																			
Design Levels	97.251	97.257	97.263	97.269	97.275	97.281	97.287	97.292	97.298	97.304	97.310	97.316	97.322	97.328	97.334	97.340	97.346	97.352	97.358
Ground Levels	97.079	97.098	97.054	97.071	97.087	97.103	97.120	97.136	97.146	97.160	97.174	97.187	97.201	97.215	97.229	97.257	97.289	97.321	97.341
Chainage	254+450	254+500	254+550	254+600	254+650	254+700	254+750	254+800	254+850	254+900	254+950	255+000	255+050	255+100	255+150				

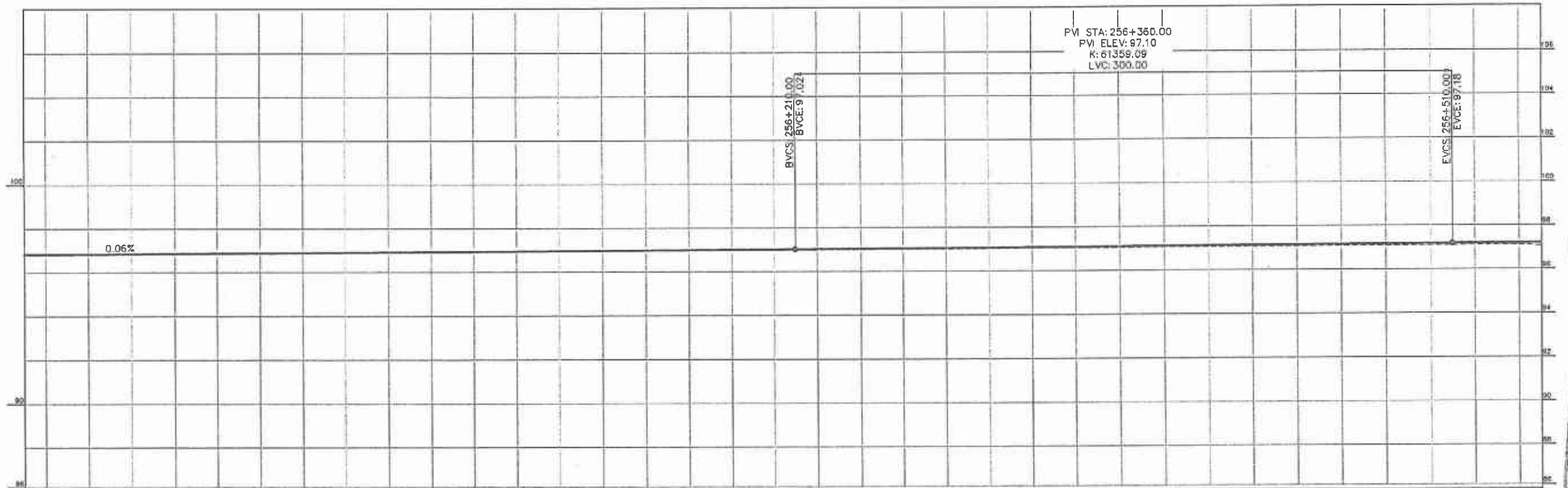
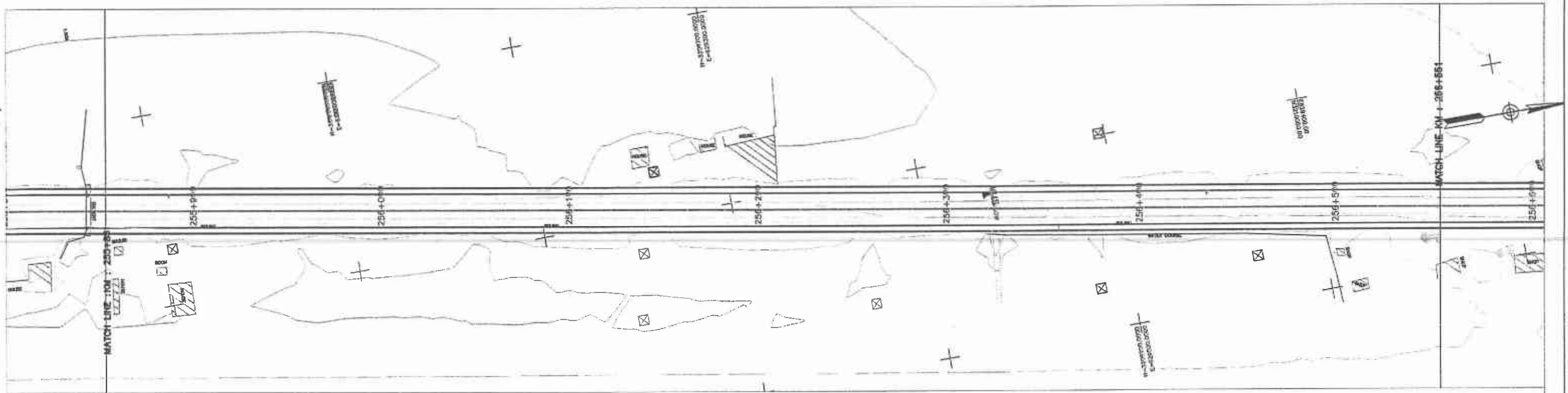




KM: 255+840
B.C: 1(2.5X1.5)
SKEW: 0



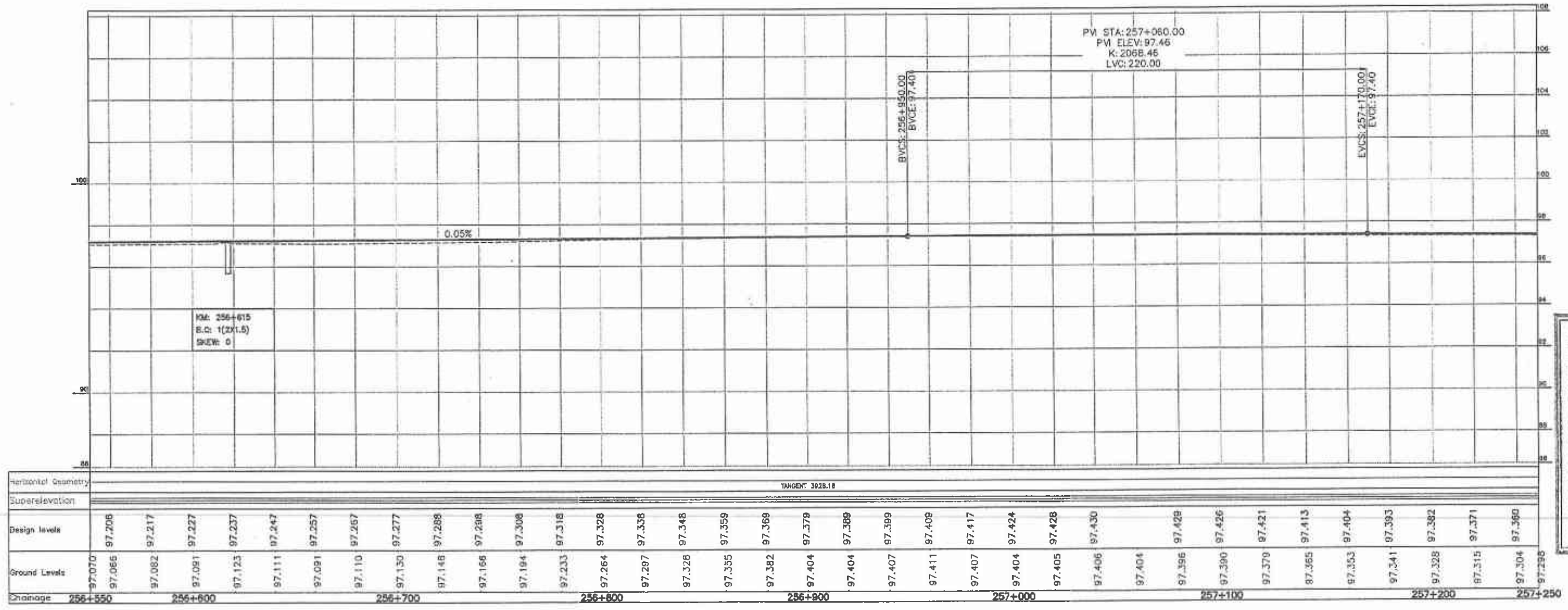
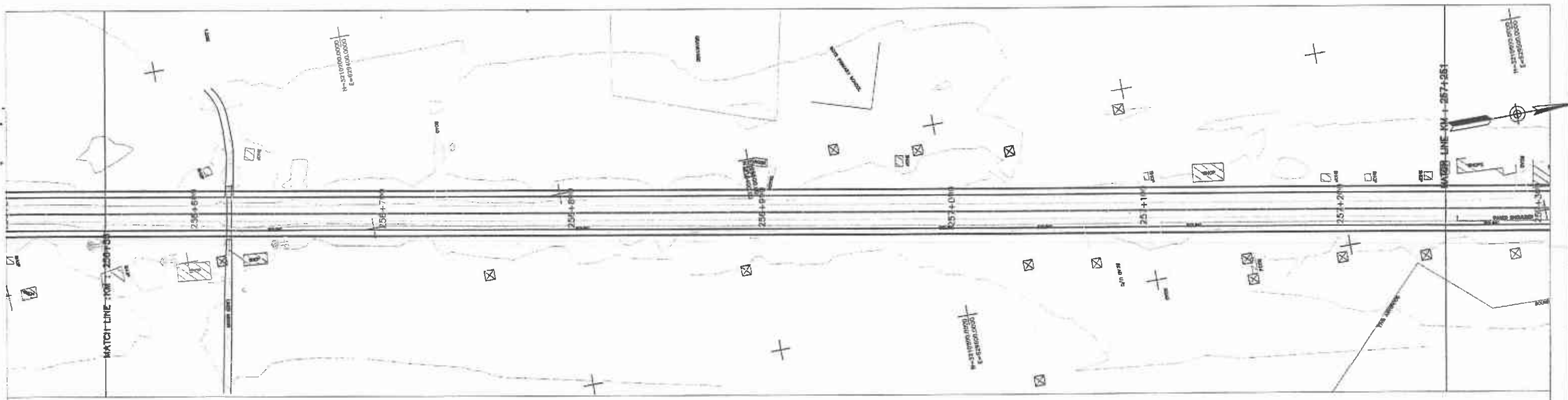
Horizontal Geometry	TANGENT 3928.16																			
Superelevation																				
Design Levels	97.082	97.050	97.018	96.986	96.955	96.923	96.891	96.859	96.827	96.795	96.763	96.731	96.699	96.667	96.635	96.603	96.571	96.539	96.507	96.475
Ground Levels	97.050	97.075	97.063	97.049	97.036	97.019	97.001	96.971	96.921	96.872	96.823	96.773	96.724	96.678	96.634	96.594	96.558	96.521	96.485	96.449
Chainage	255+150	255+200	255+250	255+300	255+350	255+400	255+450	255+500	255+550	255+600	255+650	255+700	255+750	255+800	255+850	255+900	255+950	256+000	256+050	256+100



Horizontal Geometry		TANGENT 3928.16																			
Superelevation																					
Design levels	96.827 96.838 96.849 96.860 96.871 96.883 96.894 96.905 96.918 96.927 96.938 96.949 96.960 96.972 96.983 96.994 97.005 97.016 97.027																				
Ground Levels	96.872 96.853 96.820 96.827 96.847 96.869 96.885 96.892 96.902 96.913 96.924 96.935 96.946 96.954 96.961 96.970 96.972 96.979 96.988 96.993 96.999 97.007 97.018 97.028 97.038 97.042 97.049 97.056 97.060 97.066 97.069 97.075 97.084 97.092 97.101 97.109																				
Chenage	255+850 255+900 256+000 256+100 256+200 256+300 256+400 256+500 256+550																				



GOVERNMENT OF PAKISTAN MINISTRY OF COMMUNICATIONS NATIONAL HIGHWAY AUTHORITY	NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD.	JAWAD EL HAQ Project Manager M/S NES FAK		DRAWN SUBMITTED RECOMMENDED CHD./VER.	RATODERO ~ RAJANPUR ROAD (SECTION-V) (ROJHAN TO RAJANPUR)	PLAN & PROFILE KM: 255+850 ~ KM: 256+550 SCALE: 1:2000	
		REV. DATE DESCRIPTION APPROVED	APPROVED	DATE: MARCH 2020 DWG NO.: 3905/102/TD/P&P368			



Horizontal Geometry	TANGENT 3928.18																			
Superelevation																				
Design Levels	97.206	97.217	97.227	97.237	97.247	97.257	97.267	97.277	97.288	97.298	97.308	97.318	97.328	97.338	97.348	97.359	97.369	97.379	97.389	97.399
Ground Levels	97.070	97.066	97.082	97.091	97.123	97.111	97.091	97.110	97.130	97.148	97.166	97.194	97.233	97.264	97.297	97.328	97.355	97.382	97.404	97.404
Chainage	256+550	256+600	256+650	256+700	256+750	256+800	256+850	256+900	256+950	257+000	257+050	257+100	257+150	257+200	257+250					

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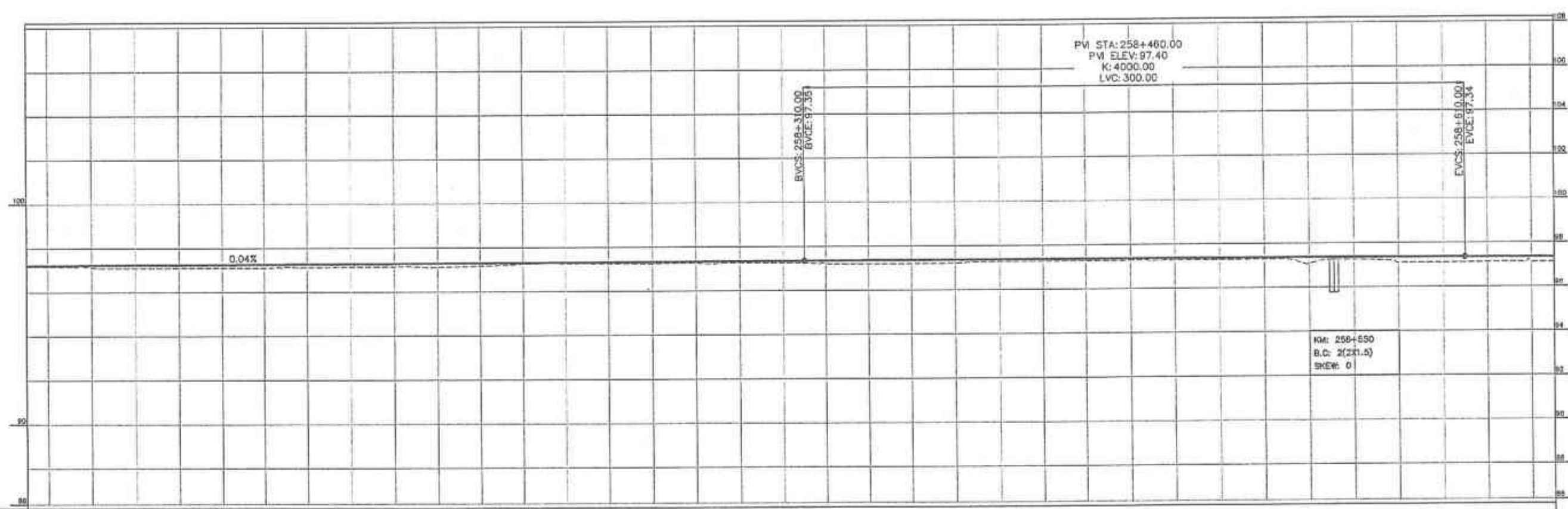
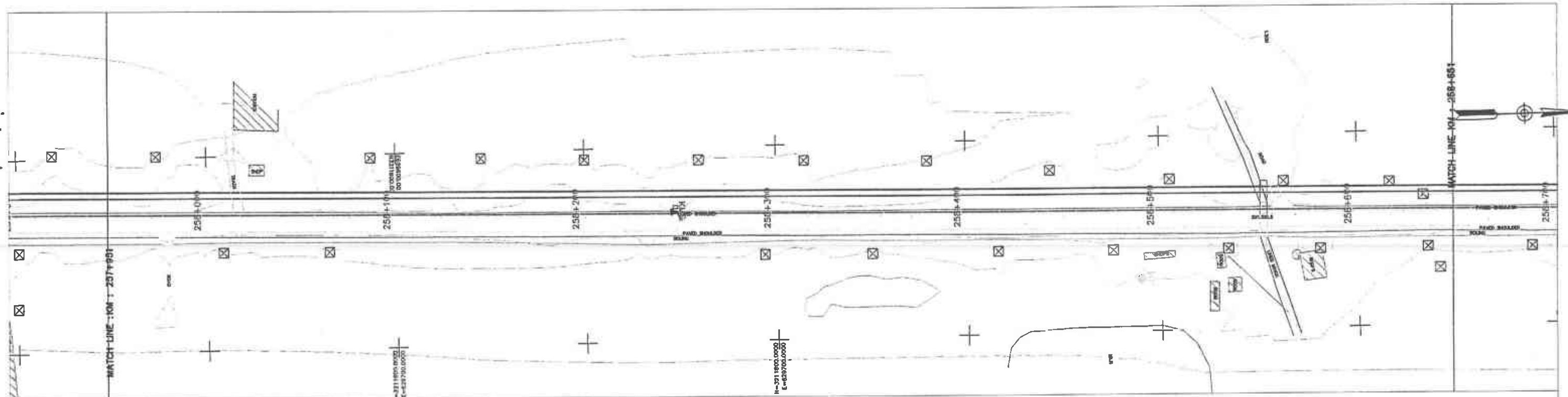


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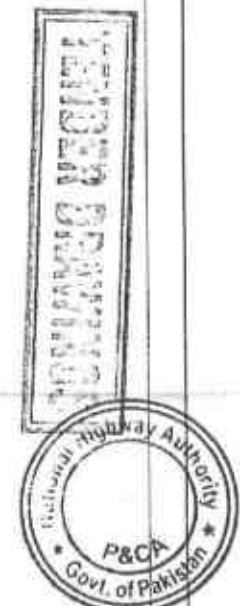
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 SUBMITTED
 RECOMMENDED
 CHD./VER.
 APPROVED

RATODERO ~ RAJANPUR ROAD
 (SECTION-V)
 (ROJHAN TO RAJANPUR)

PLAN & PROFILE
 KM: 256+550 ~ KM: 257+250
 DATE: MARCH 2020
 DWG NO.: 3905/102/TD/P&P369



Horizontal Geometry	TANGENT 258+32																		
Superelevation																			
Design Levels	97.217	97.225	97.232	97.239	97.247	97.254	97.261	97.268	97.276	97.283	97.290	97.298	97.305	97.312	97.320	97.327	97.334	97.342	97.349
Ground Levels	97.170	97.166	97.131	97.090	97.091	97.092	97.097	97.119	97.129	97.143	97.114	97.165	97.247	97.267	97.255	97.237	97.256	97.273	97.248
Chainage	257+850	258+000					258+100					258+200				258+300			258+400
																			258+500
																			258+600
																			258+650



GOVERNMENT OF PAKISTAN
MINISTRY OF COMMUNICATIONS
NATIONAL HIGHWAY AUTHORITY

NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD.

SAWABUL HAQ
Project Manager
W/S NESPAK

REV.	DATE	DESCRIPTION	APPROVED	APPROVED

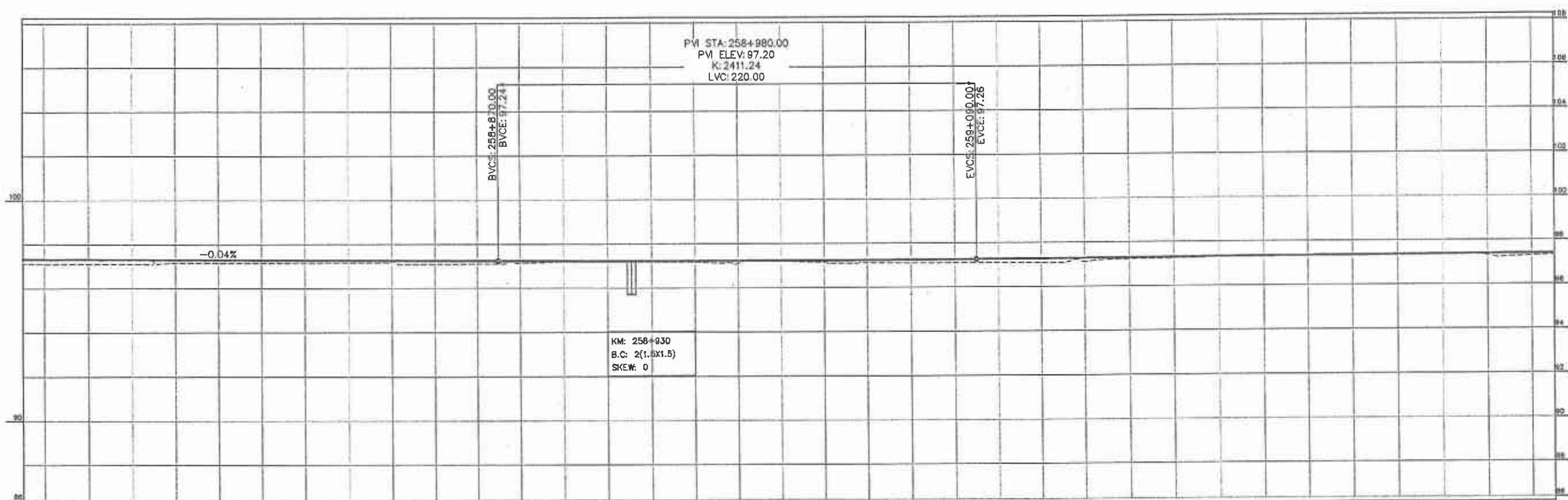
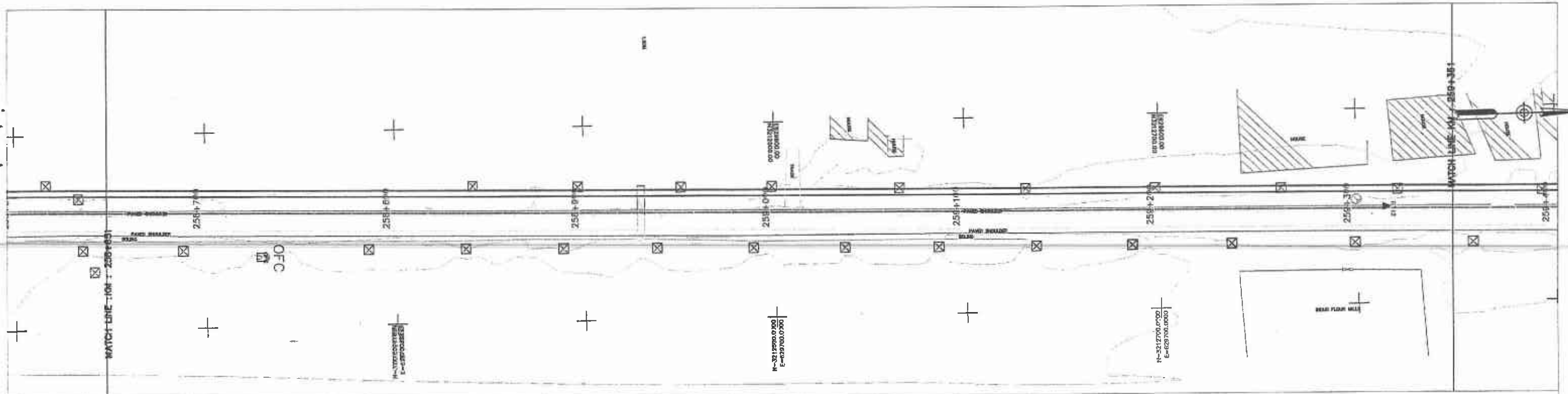
RATODERO ~ RAJANPUR ROAD
(SECTION-V)
(ROJHAN TO RAJANPUR)

PLAN & PROFILE
KM: 257+950 ~ KM: 258+650

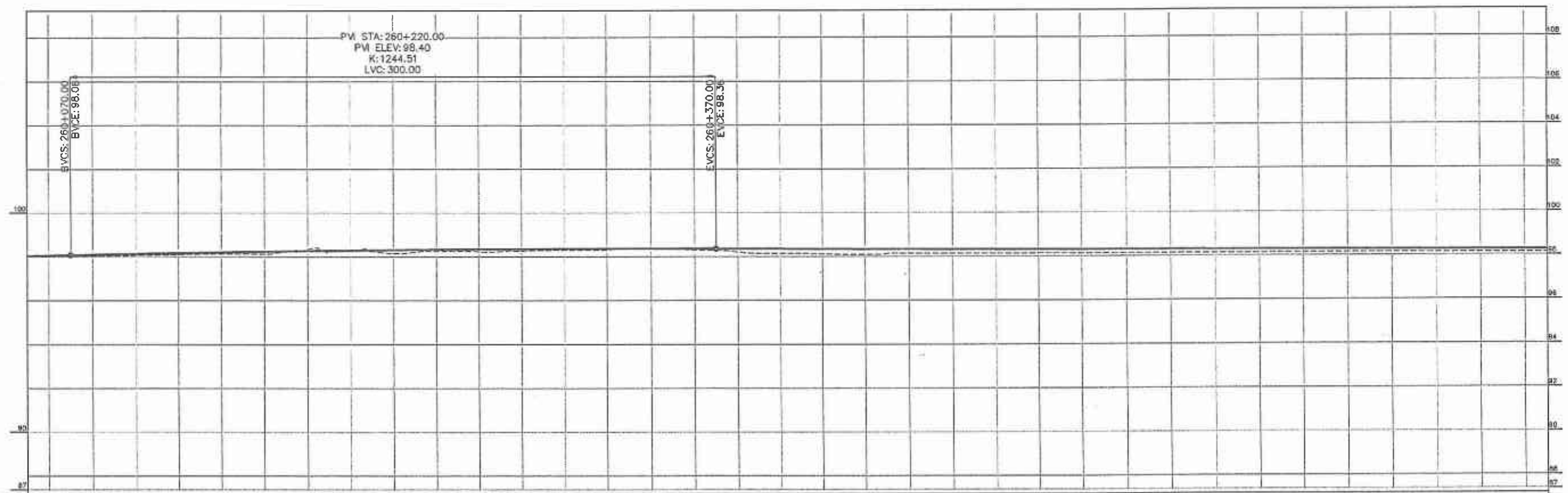
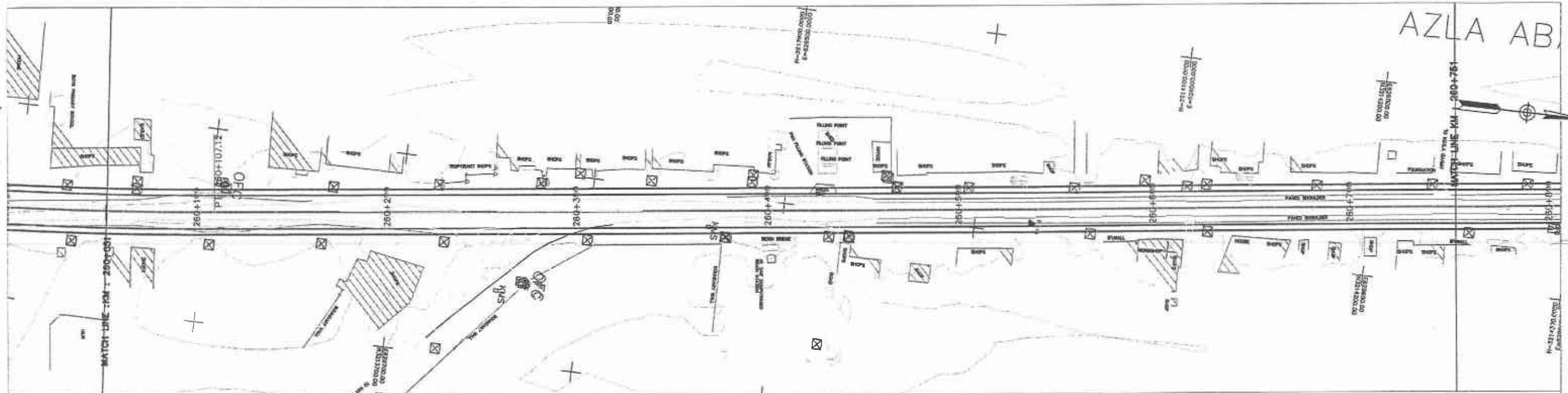
DATE: MARCH 2020

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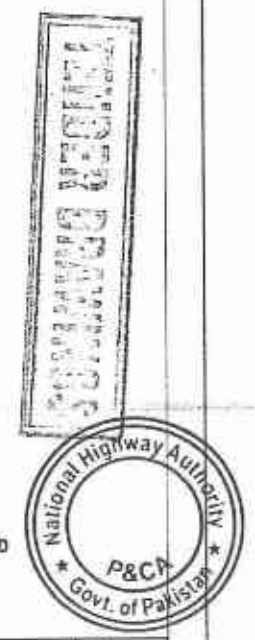
DWG NO.: 3905/102/TD/P&P371



Horizontal Geometry		Superelevation		Design Levels		Ground Levels	
Stationing	258+650	258+700	258+800	258+900	258+1000	258+1100	258+1200
Superelevation	0.04%	0.04%	0.04%	0.04%	0.04%	0.04%	0.04%
Design Levels	97.323	97.315	97.308	97.300	97.292	97.285	97.277
Ground Levels	97.107	97.106	97.104	97.101	97.150	97.153	97.156
Stationing	258+1300	258+1400	258+1500	258+1600	258+1700	258+1800	258+1900
Superelevation	0.04%	0.04%	0.04%	0.04%	0.04%	0.04%	0.04%
Design Levels	97.277	97.269	97.262	97.254	97.246	97.239	97.233
Ground Levels	97.159	97.163	97.234	97.096	97.098	97.141	97.193
Stationing	258+2000	258+2100	258+2200	258+2300	258+2400	258+2500	258+2600
Superelevation	0.04%	0.04%	0.04%	0.04%	0.04%	0.04%	0.04%
Design Levels	97.224	97.226	97.228	97.233	97.239	97.246	97.254
Ground Levels	97.167	97.185	97.189	97.233	97.239	97.246	97.254
Stationing	258+2700	258+2800	258+2900	258+3000	258+3100	258+3200	258+3300
Superelevation	0.04%	0.04%	0.04%	0.04%	0.04%	0.04%	0.04%
Design Levels	97.224	97.226	97.228	97.233	97.239	97.246	97.254
Ground Levels	97.167	97.185	97.189	97.233	97.239	97.246	97.254
Stationing	258+3400	258+3500	258+3600	258+3700	258+3800	258+3900	258+4000
Superelevation	0.04%	0.04%	0.04%	0.04%	0.04%	0.04%	0.04%
Design Levels	97.224	97.226	97.228	97.233	97.239	97.246	97.254
Ground Levels	97.167	97.185	97.189	97.233	97.239	97.246	97.254



Horizontal Geometry	CURVE R=2000.00																			
Superelevation	TANGENT 1387.02																			
Design Levels	98.059	98.101	98.141	98.177	98.210	98.240	98.266	98.289	98.327	98.340	98.351	98.358	98.362	98.363	98.361	98.355	98.350	98.344	98.339	98.333
Ground Levels	98.016	98.038	98.066	98.108	98.131	98.121	98.337	98.291	98.159	98.245	98.237	98.269	98.293	98.312	98.358	98.307	98.211	98.138	98.121	98.094
Chainage	260+050	260+100	260+150	260+200	260+250	260+300	260+350	260+400	260+450	260+500	260+550	260+600	260+650	260+700	260+750					



 GOVERNMENT OF PAKISTAN MINISTRY OF COMMUNICATIONS NATIONAL HIGHWAY AUTHORITY	 NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD.	RATODERO ~ RAJANPUR ROAD (SECTION-V) (ROJHAN TO RAJANPUR)				PLAN & PROFILE KM: 260+050 ~ KM: 260+750 SCALE: 1:2000	
		DATE: MARCH 2020 DWG NO.: 3905/102/TD/P&P374					

AZLA ABAD

TRUCK LANE

BICYCLE LANE

HOUSE

SHOP

MOTOR

WATER COURSE

MOTOR ROAD

25+00

26+00

27+00

28+00

29+00

30+00

31+00

32+00

33+00

34+00

35+00

36+00

37+00

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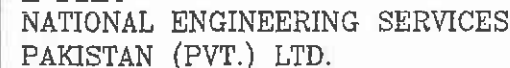
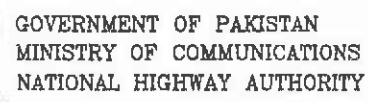
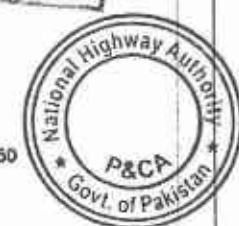
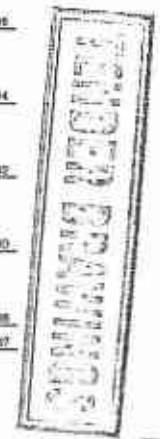
351+00

352+00

353+00

354+00

355+00



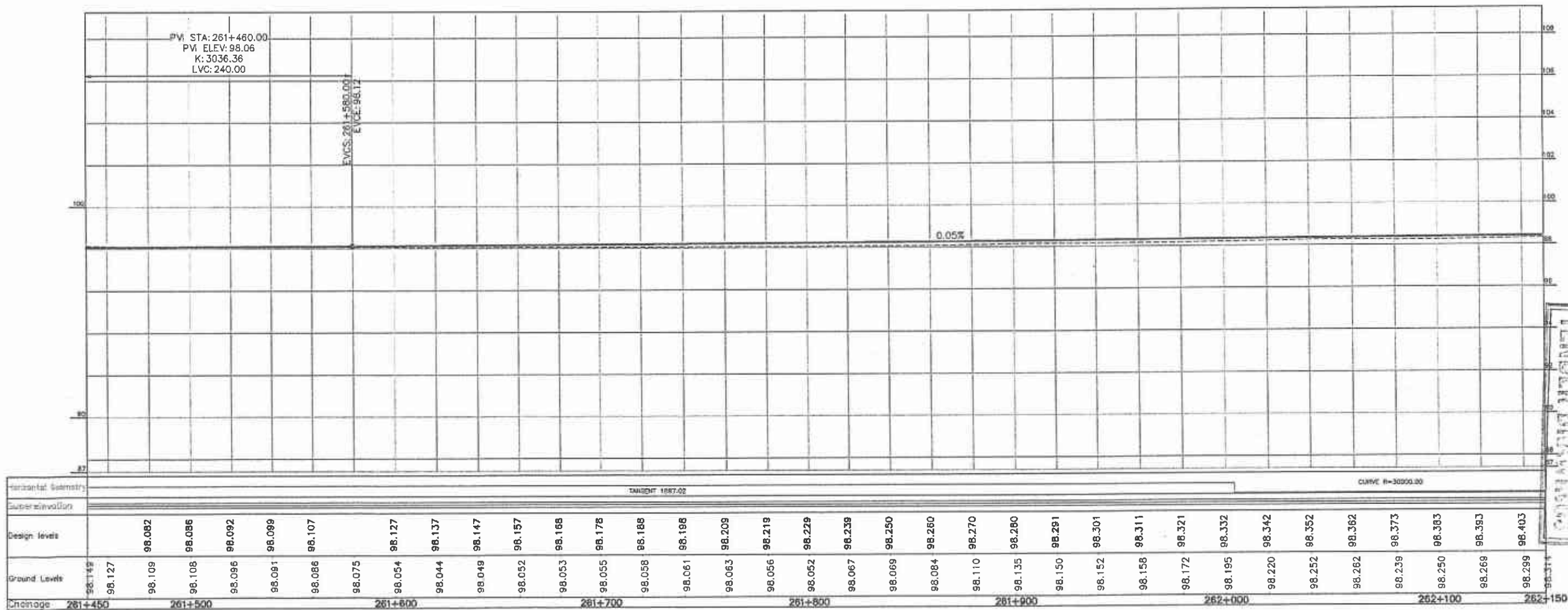
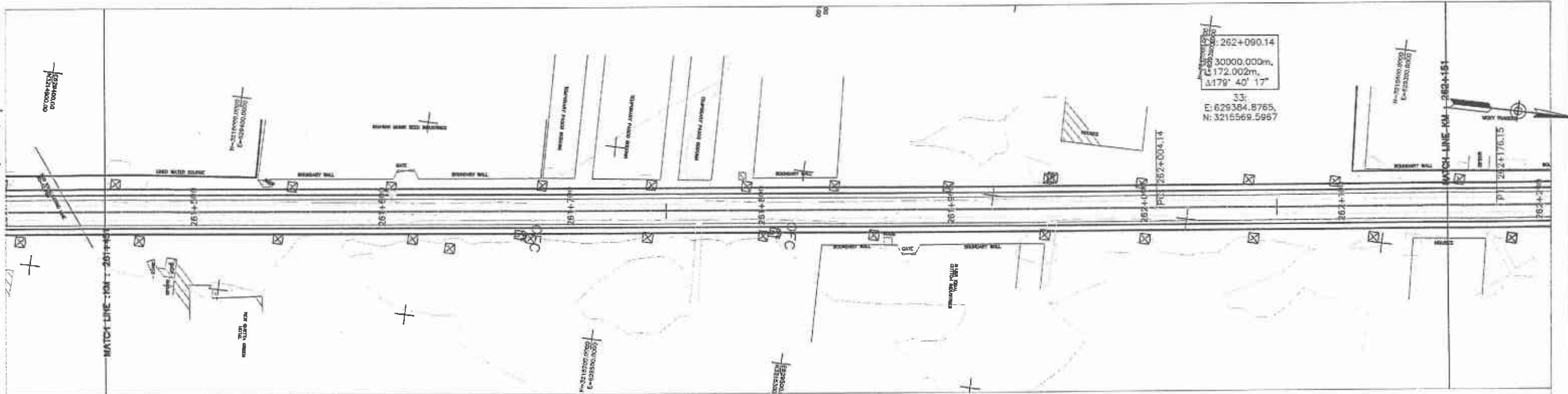
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					SUBMITTED	
					RECOMMENDED	
					CHD./VER.	
REV.	DATE	DESCRIPTION	APPROVED			

PLAN & PROFILE
KM: 260+750 ~ KM: 261+450

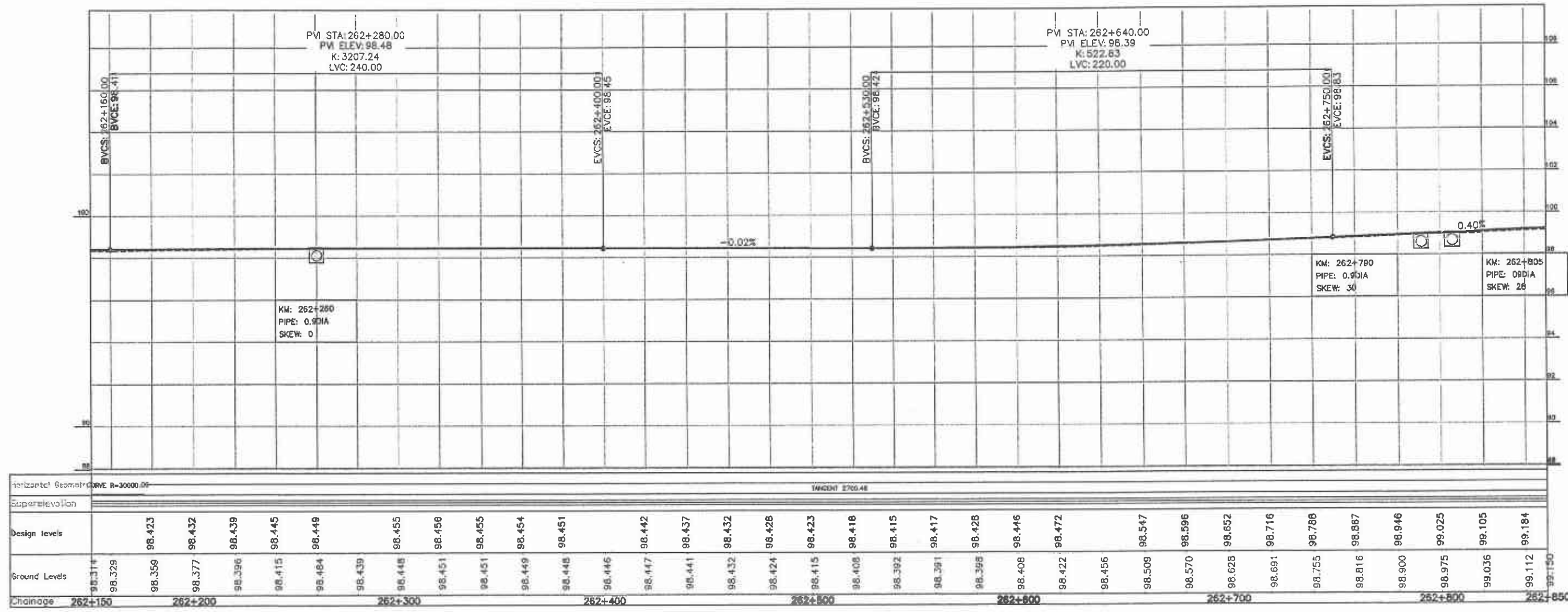
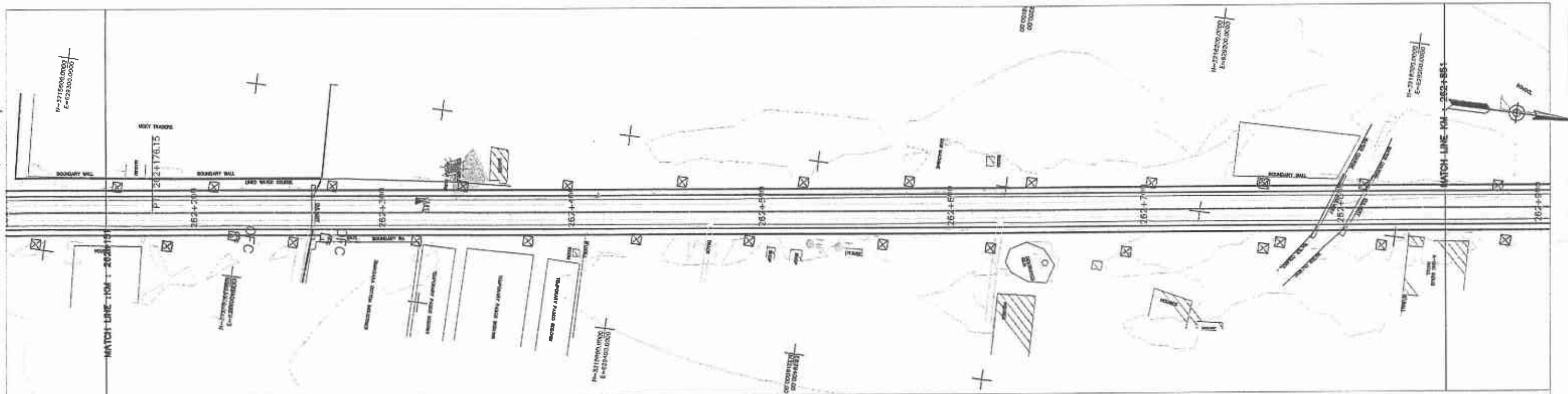
DATE	DWG NO.
MARCH 2020	3905/102/TD/P&P375

SCALE

1:2000



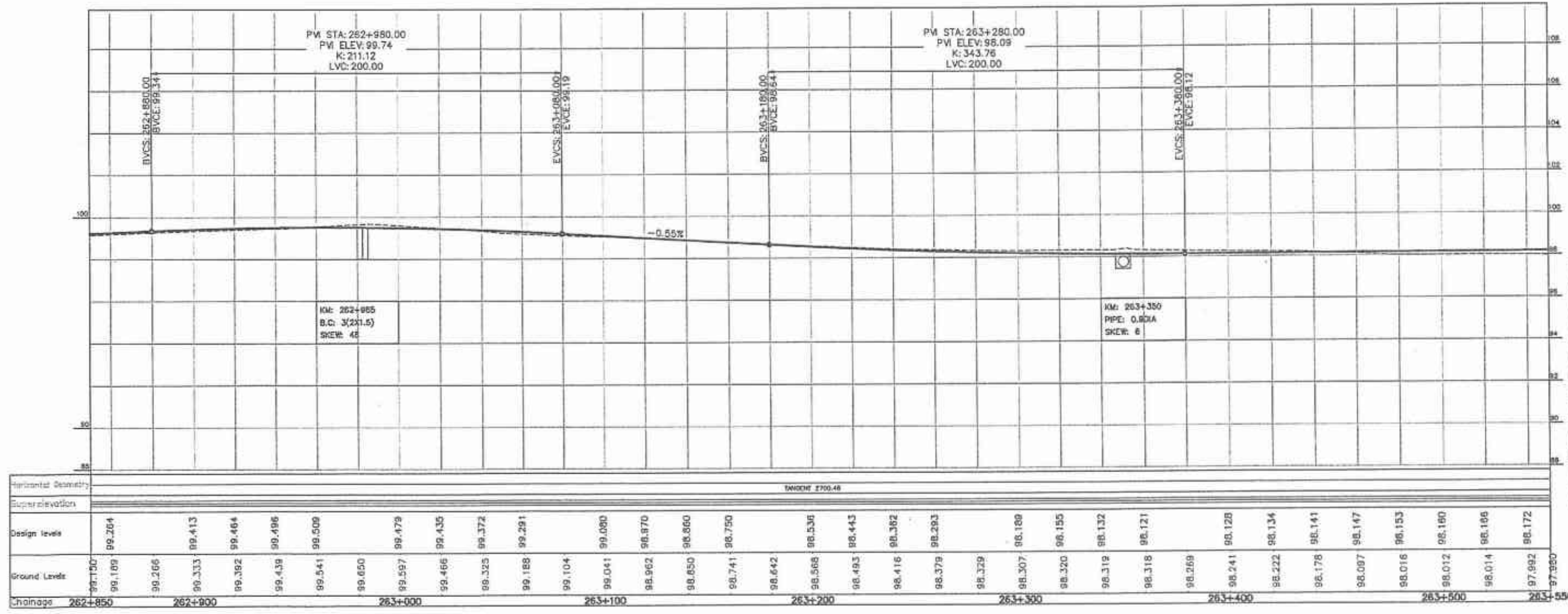
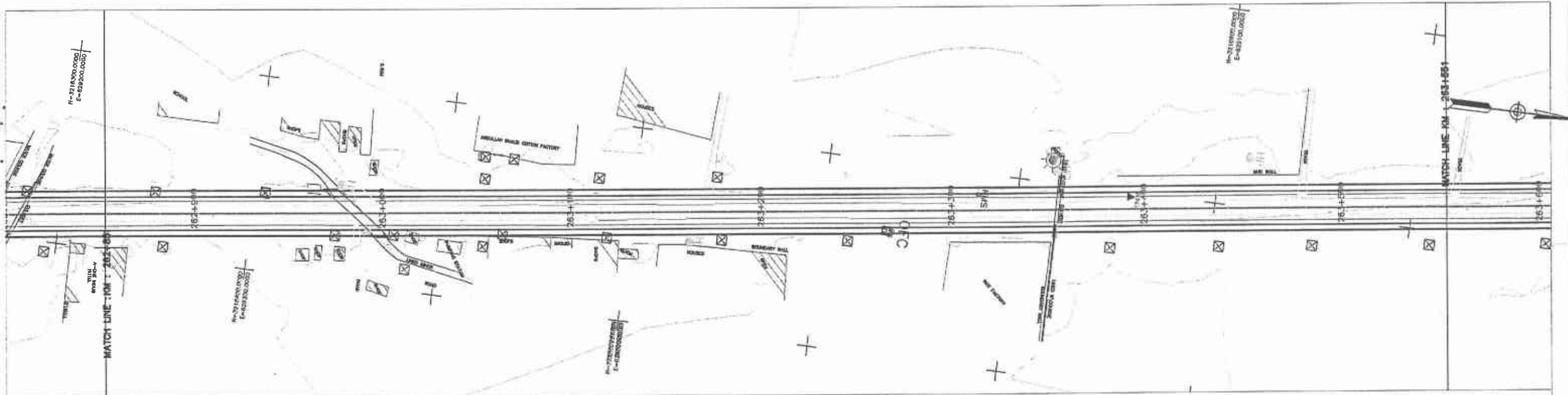
Horizontal Stationing	Super-elevation	Design Levels	Ground Levels	Choreage
261+450		98.082	98.142	261+450
261+500		98.086	98.127	261+500
261+550		98.092	98.109	261+550
261+600		98.099	98.108	261+600
261+650		98.107	98.096	261+650
261+700		98.117	98.091	261+700
261+750		98.127	98.086	261+750
261+800		98.137	98.075	261+800
261+850		98.147	98.054	261+850
261+900		98.157	98.044	261+900
261+950		98.168	98.049	261+950
262+000		98.178	98.052	262+000
262+050		98.188	98.053	262+050
262+100		98.198	98.055	262+100
262+150		98.209	98.058	262+150
		98.219	98.061	
		98.229	98.063	
		98.239	98.056	
		98.250	98.052	
		98.260	98.067	
		98.270	98.069	
		98.280	98.084	
		98.291	98.110	
		98.301	98.135	
		98.311	98.150	
		98.321	98.152	
		98.332	98.158	
		98.342	98.172	
		98.352	98.195	
		98.362	98.220	
		98.373	98.252	
		98.383	98.262	
		98.393	98.239	
		98.403	98.250	
			98.269	
			98.299	



Horizontal Curve	R=30000.00																			
Superelevation	TANGENT 2700.48																			
Design Levels	98.423	98.432	98.439	98.445	98.449	98.455	98.456	98.455	98.454	98.451	98.445	98.442	98.437	98.432	98.428	98.423	98.418	98.415	98.417	98.428
Ground Levels	98.314	98.329	98.359	98.377	98.396	98.415	98.434	98.451	98.469	98.485	98.501	98.517	98.532	98.547	98.562	98.577	98.592	98.607	98.622	98.637
Chainage	262+150	262+200	262+250	262+300	262+350	262+400	262+450	262+500	262+550	262+600	262+650	262+700	262+750	262+800	262+850	262+900	262+950	263+000	263+050	263+100

SAVED

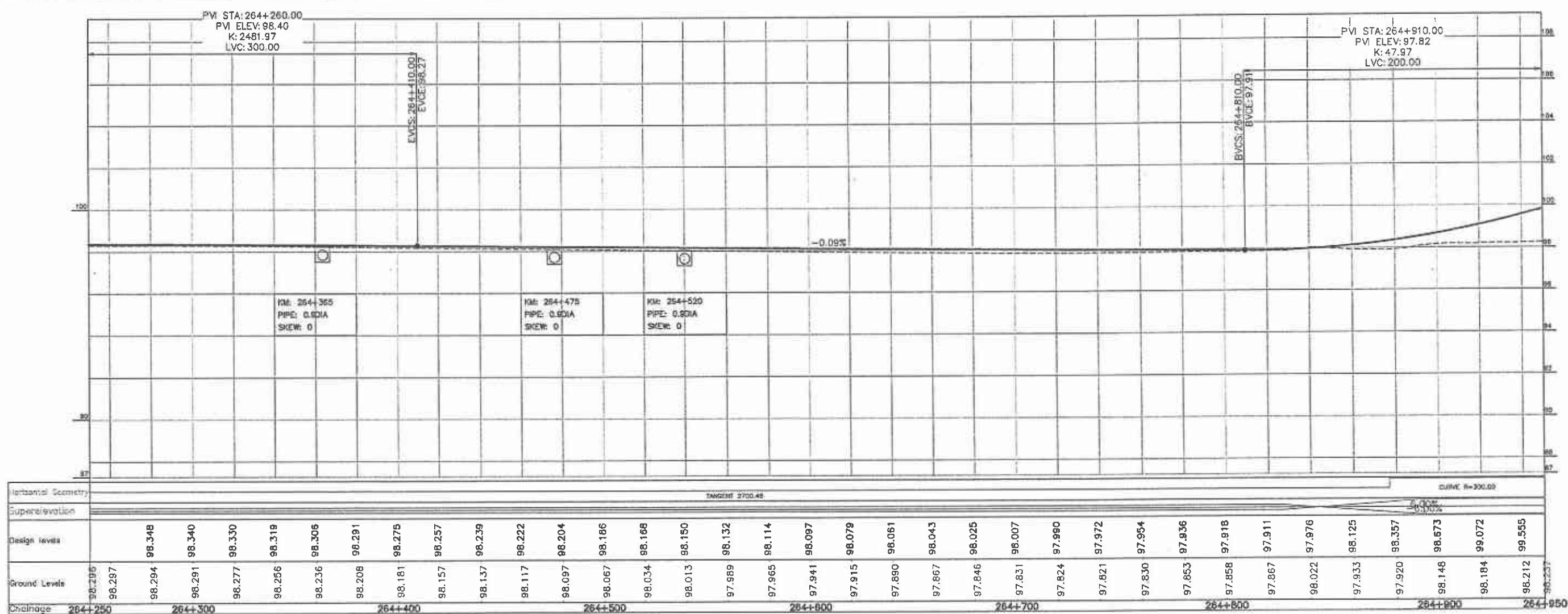
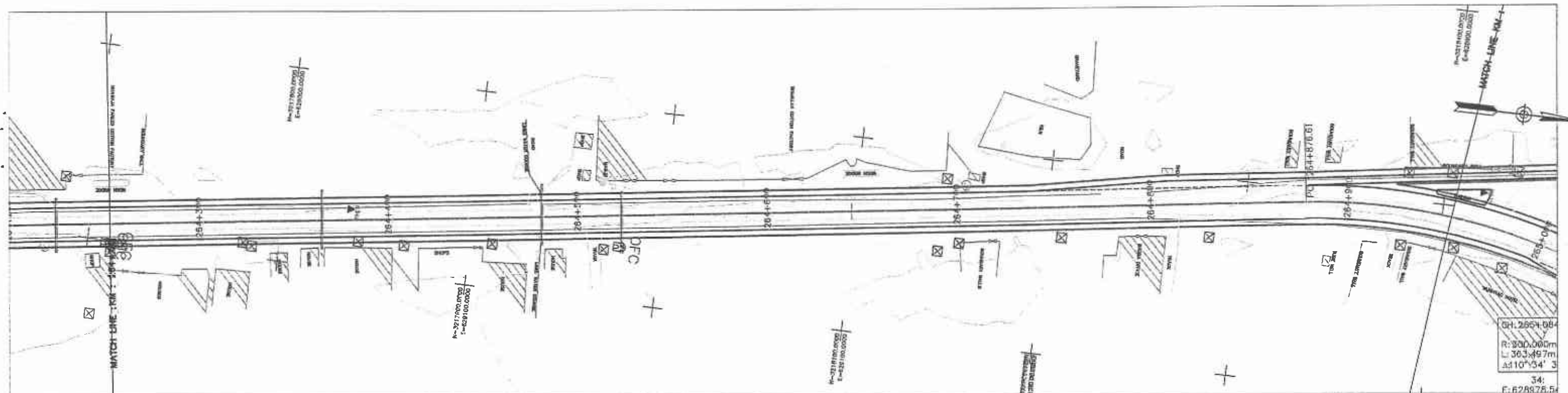




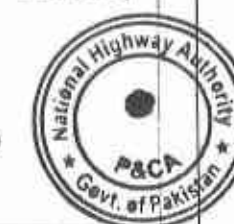
SUBMITTED

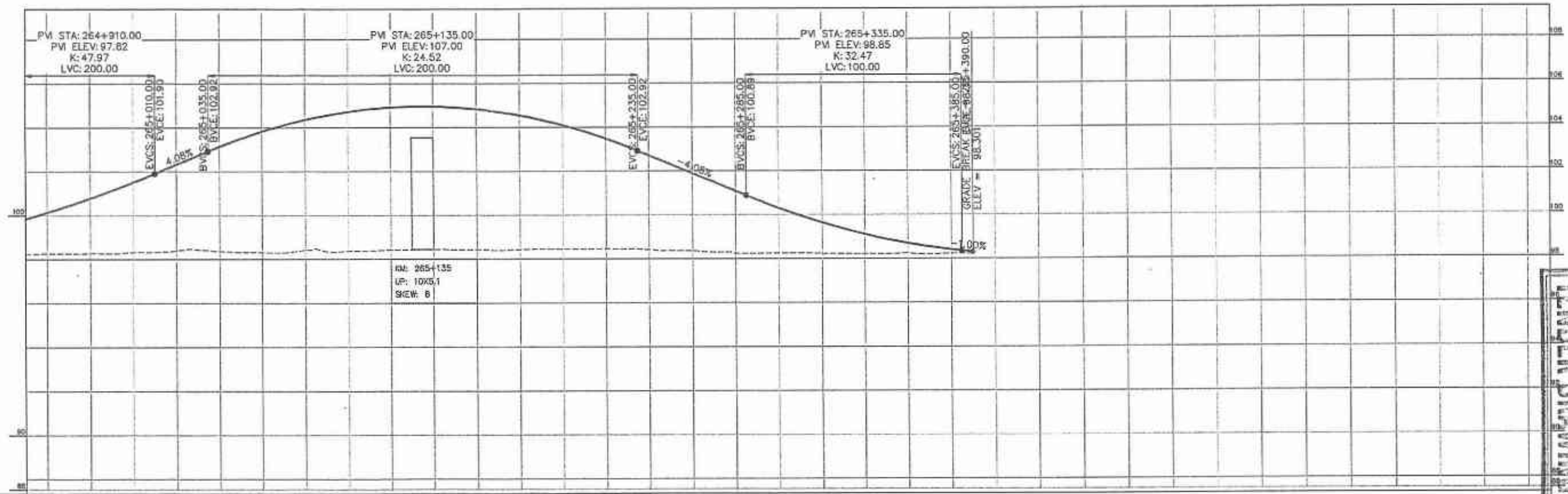
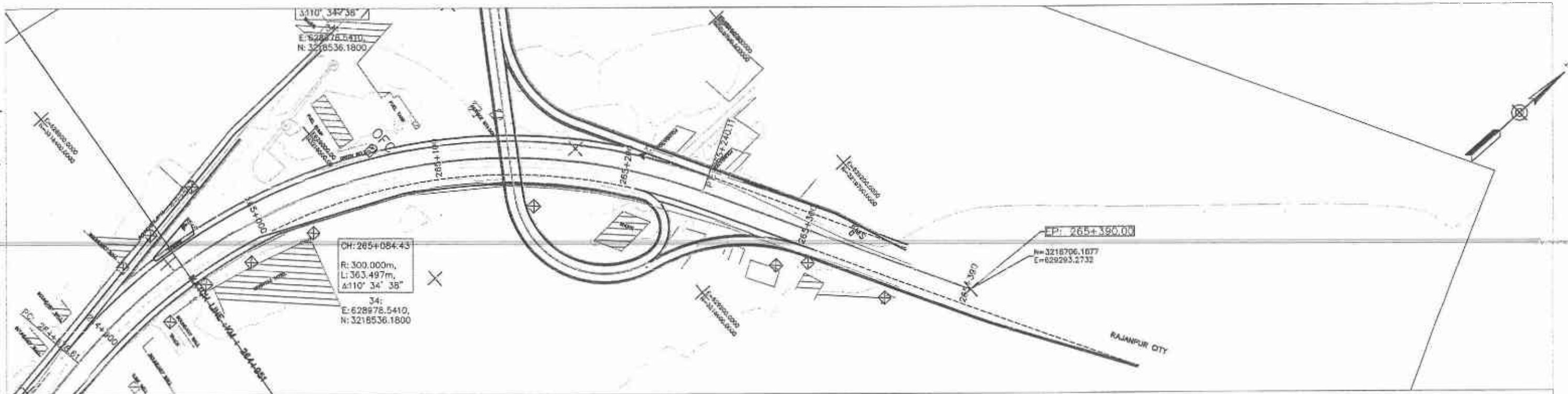


				DRAWN	
				SUBMITTED	
				RECOMMENDED	
				CHD./VER.	
REV.	DATE	DESCRIPTION	APPROVED	APPROVED	



3003/102/10/P&P380





Horizontal Geometry	CURVE R=300.00														
Superelevation	TANGENT 148.88														
Design Levels	100.121	100.770	101.502	102.308	103.119	103.813	104.343	104.711	104.915	104.958	104.834	104.549	104.101	103.490	102.721
Ground Levels	98.237	98.266	98.279	98.325	98.359	98.314	98.416	98.368	98.417	98.447	98.438	98.432	98.454	98.487	98.418
Chainage	264+950	265+000				265+100					265+200				265+300
															265+400
															265+500
															265+600
															265+650

JAWAHAR LAL NEHRU



GOVERNMENT OF PAKISTAN
MINISTRY OF COMMUNICATIONS
NATIONAL HIGHWAY AUTHORITY

NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD.

REV. DATE DESCRIPTION APPROVED APPROVED

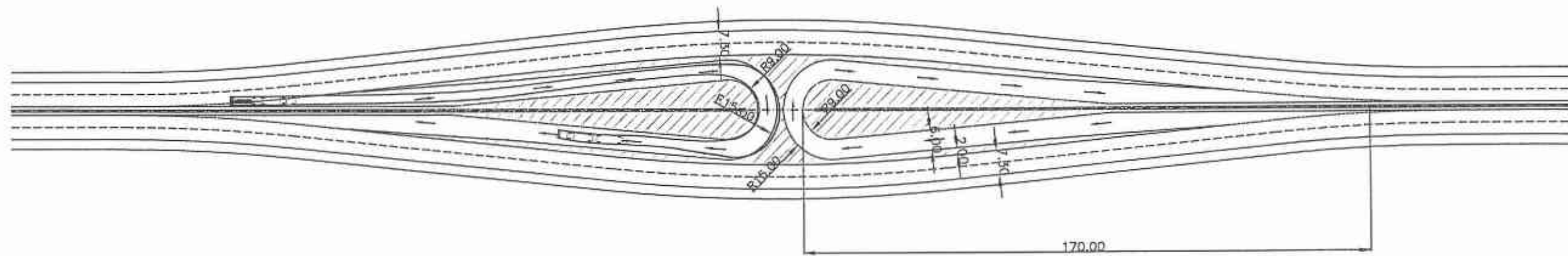
**RATODERO ~ RAJANPUR ROAD
(SECTION-V)
(ROJHAN TO RAJANPUR)**

PLAN & PROFILE
KM: 264+950 ~ KM: 265+650

DATE: MARCH 2020

SCALE: 1:2000

DWG NO.: 3905/102/TD/P&P381




TENDER DRAWINGS



GOVERNMENT OF PAKISTAN
MINISTRY OF COMMUNICATIONS
NATIONAL HIGHWAY AUTHORITY



NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD.

<div style="text-align: center;">  JAWAD UL HAQ Project Manager M/S NESPAK </div>		DRAWN		
		SUBMITTED		
		RECOMMENDED		
		CHD./VER.		
REV.	DATE	DESCRIPTION	APPROVED	APPROVED

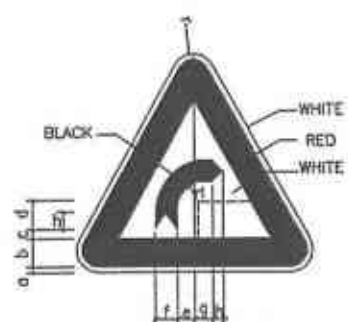
RATODERO ~ RAJANPUR ROAD
(SECTION-IV)
(ROJHAN TO RAJANPUR)

TYPICAL U-TURN

SCALE
1:2000

DATE
MARCH 2020

DWG NO.
3905/102/TD/UTURN-01



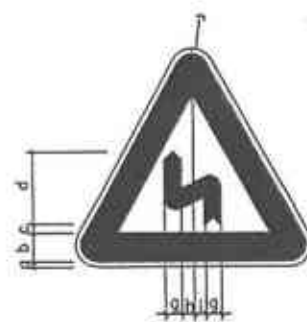
(W-1)
CURVE TOWARDS RIGHT

DIMENSION (cm)		
PARTS	SIGN SIZE	
	90cm	120cm
r	3.5	4.7
a	1.0	1.3
b	6.5	8.7
c	4.0	5.3
d	11.5	15.3
e	8.5	11.3
f	7.0	9.3
g	6.0	8.0
h	3.5	4.7
i	12.5	16.7



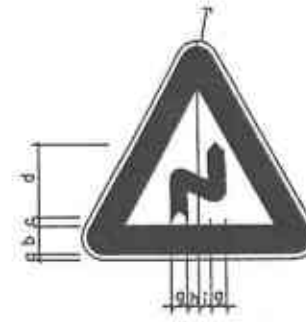
(W-2)
CURVE TOWARDS LEFT

DIMENSION (cm)		
PARTS	SIGN SIZE	
	90cm	120cm
r	3.5	4.7
a	1.0	1.3
b	6.5	8.7
c	4.0	5.3
d	11.5	15.3
e	8.5	11.3
f	7.0	9.3
g	6.0	8.0
h	3.5	4.7
i	12.5	16.7



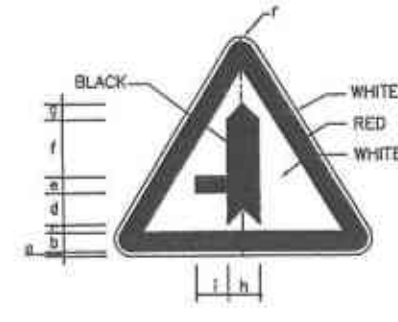
(W-3)
LEFT REVERSE CURVE

DIMENSION (cm)		
PARTS	SIGN SIZE	
	90cm	120cm
r	3.5	4.7
a	1.0	1.3
b	6.5	8.7
c	3.0	4.0
d	33.0	44.0
e	14.0	18.7
f	8.0	10.7
g	7.0	9.3
h	2.0	2.7
i	3.5	4.7
j	4.5	6.0



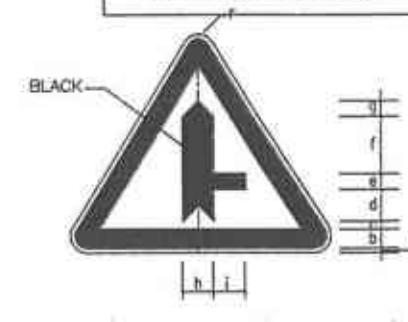
(W-4)
RIGHT REVERSE CURVE

DIMENSION (cm)		
PARTS	SIGN SIZE	
	90cm	120cm
r	3.5	4.7
a	1.0	1.3
b	6.5	8.7
c	3.0	4.0
d	33.0	44.0
e	14.0	18.7
f	8.0	10.7
g	7.0	9.3
h	2.0	2.7
i	3.5	4.7
j	4.5	6.0



(W-29)
MINOR ROAD FROM LEFT

DIMENSION (cm)		
PARTS	SIGN SIZE	
	90cm	120cm
r	3.5	4.7
a	1.0	1.3
b	6.5	8.7
c	3.0	4.0
d	13.5	18.0
e	5.5	7.3
f	15.0	20.0
g	7.0	9.3
h	14.0	18.7
i	10.5	14.0



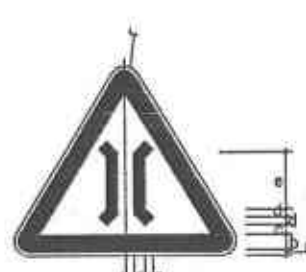
(W-29)
MINOR ROAD FROM RIGHT

DIMENSION (cm)		
PARTS	SIGN SIZE	
	90cm	120cm
r	3.5	4.7
a	1.0	1.3
b	6.5	8.7
c	3.0	4.0
d	13.5	18.0
e	5.5	7.3
f	15.0	20.0
g	7.0	9.3
h	14.0	18.7
i	10.5	14.0



W - 34
U-TURN SIGN

DIMENSION (cm)		
PARTS	SIGN SIZE	
	90cm	120cm
r	3.5	4.7
a	1.0	1.3
b	6.5	8.7
c	5.5	7.3
d	7.0	9.3
e	5.0	6.7
f	2.5	3.3
g	23.0	30.7
h	7.5	10.0
i	12.0	16.0



W - 35
NARROW BRIDGE

DIMENSION (cm)		
PARTS	SIGN SIZE	
	90cm	120cm
r	3.5	4.7
a	1.0	1.3
b	6.5	8.7
c	6.0	7.0
d	2.5	2.9
e	15.0	17.5
f	4.0	4.7
g	3.0	3.5



R - 2
GIVEWAY SIGN

DIMENSION (cm)		
PARTS	SIGN SIZE	
	90cm	120cm
r	3.5	4.7
a	1.0	1.3
b	6.5	8.7



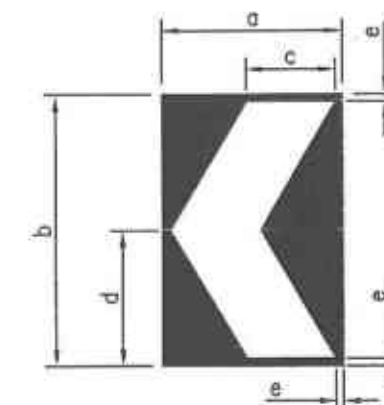
HTV
R-25a
MAXIMUM SPEED LIMIT (110)

DIMENSION (cm)		
PARTS	SIGN SIZE	
	90cm	120cm
a	1.0	1.3
b	6.5	8.7
c	3.0	4.0
d	23.0	30.7
e	20.0	26.7



LTV
R-25b
MAXIMUM SPEED LIMIT (120)

DIMENSION (cm)		
PARTS	SIGN SIZE	
	90cm	120cm
a	1.0	1.3
b	6.5	8.7
c	3.0	4.0
d	5.0	6.5
e	11.25	15.38
g	40.0	53.5

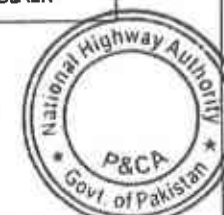


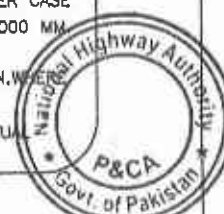
DETAILS "X"

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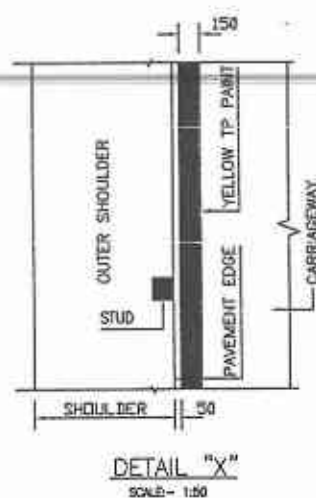
- * BACKGROUND DREFLECTORISED YELLOW
- * CHEVRON REFLECTORISED BLACK

TENDER DRAWINGS

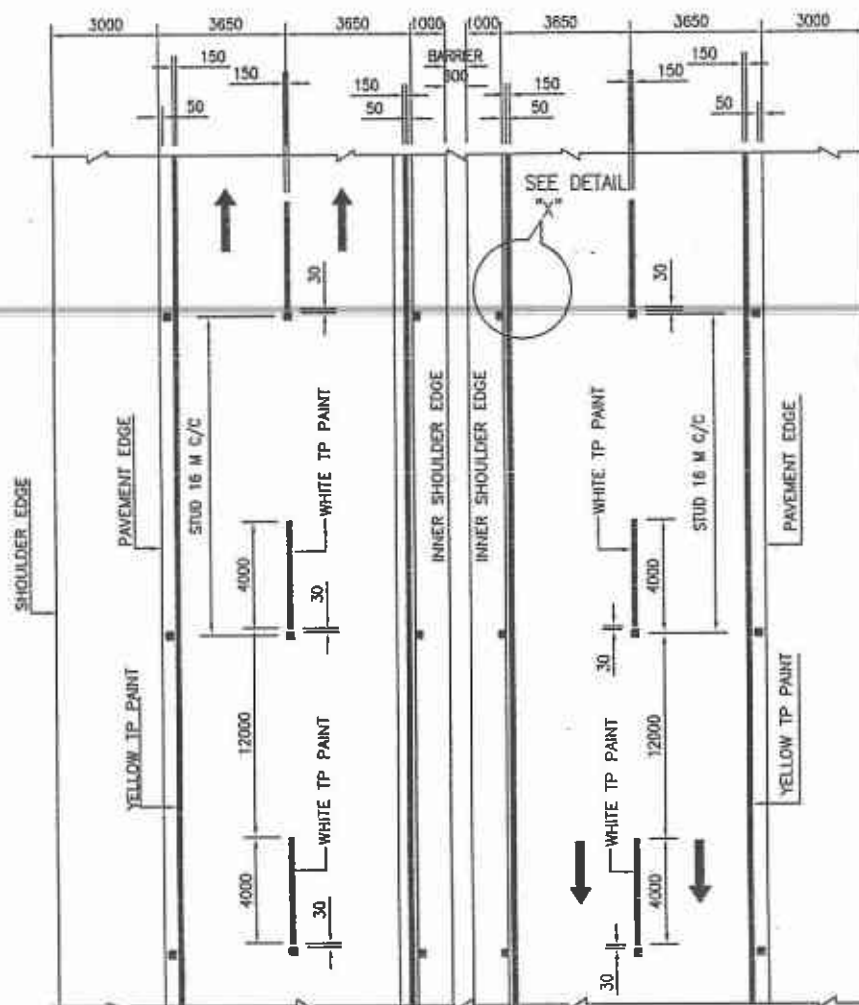




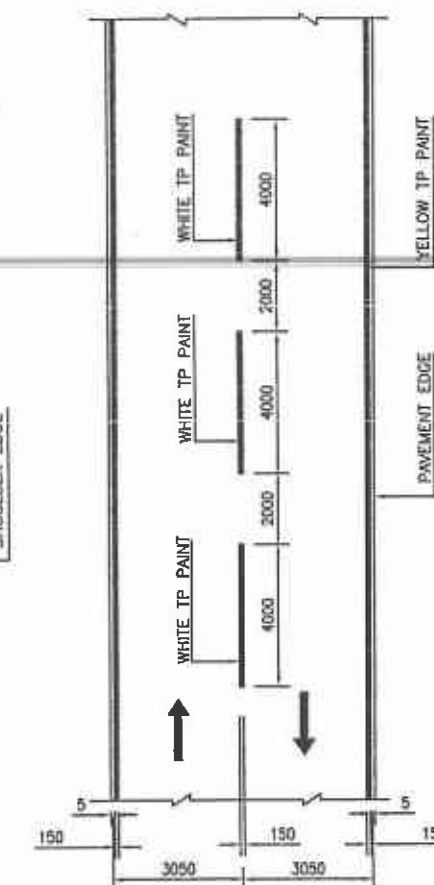
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DETAIL "X"
SCALE - 1/8" = 1'-0"

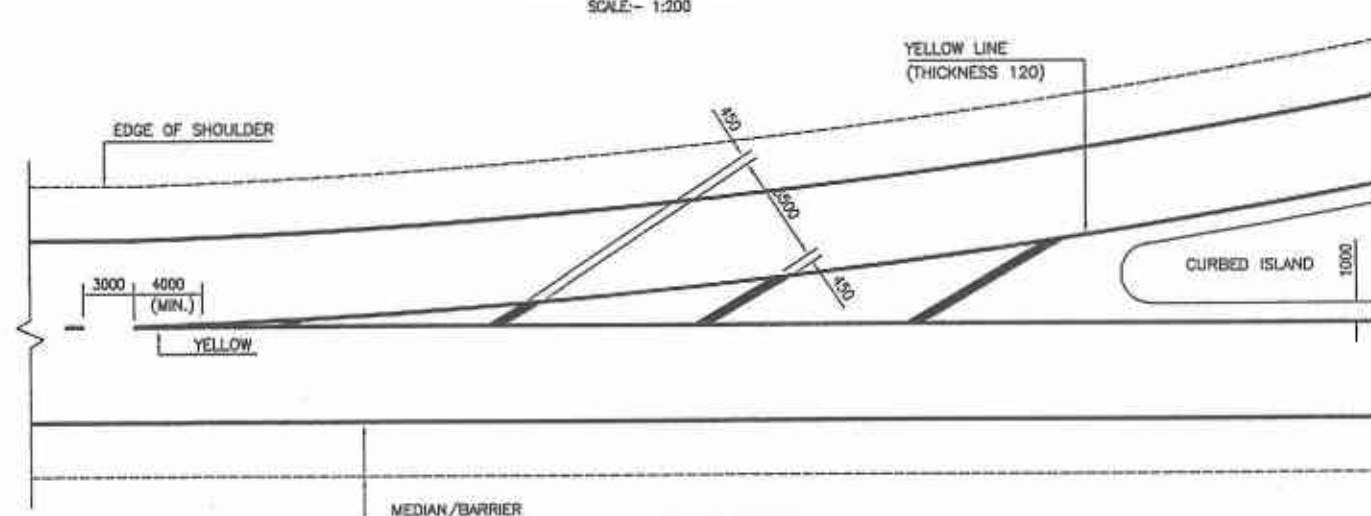


SCALE:- 1:200




ELEVATION
SCALE= 1:5

PLAN OF STUD
SHE- 1-5

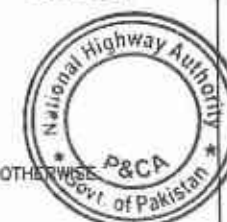
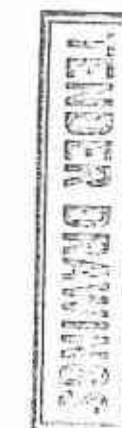


NOSE DETAIL
SCALE:- 1:200


 GOVERNMENT OF PAKISTAN
 MINISTRY OF COMMUNICATIONS
 NATIONAL HIGHWAY AUTHORITY

04		PAID IN HQ		DRAWN BY	RAJA SHAFIQ
03		Project Manager		SUBMITTED BY	
02		M/S REPAIR		RECOMMENDED BY	
01				CHD./VER. BY	
REV.	DATE	DESCRIPTION	APPROVED	APPROVED BY	

DATE MARCH 2020	DRAWING NO. 3905/102/TD/ TS-0
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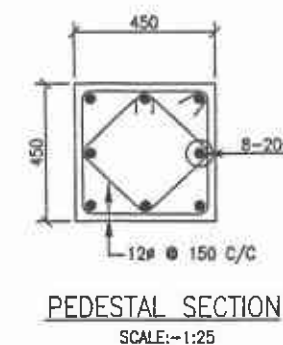
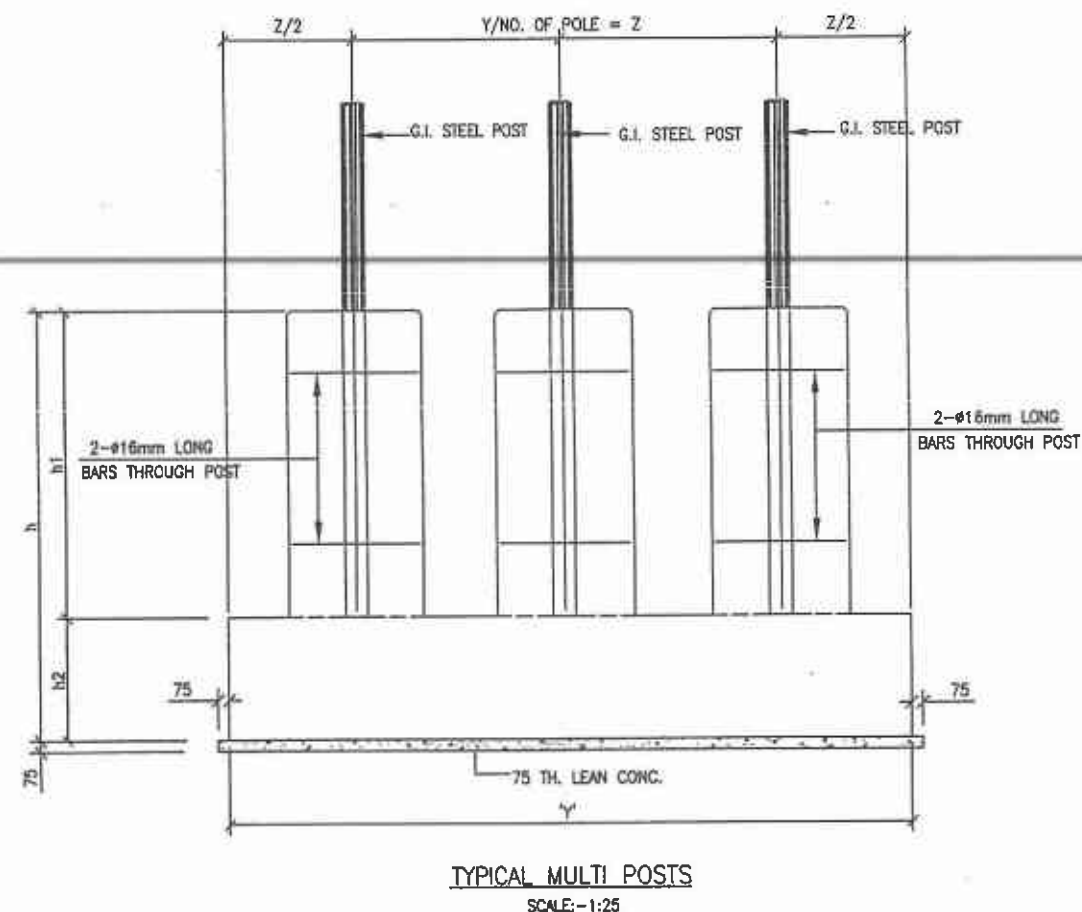
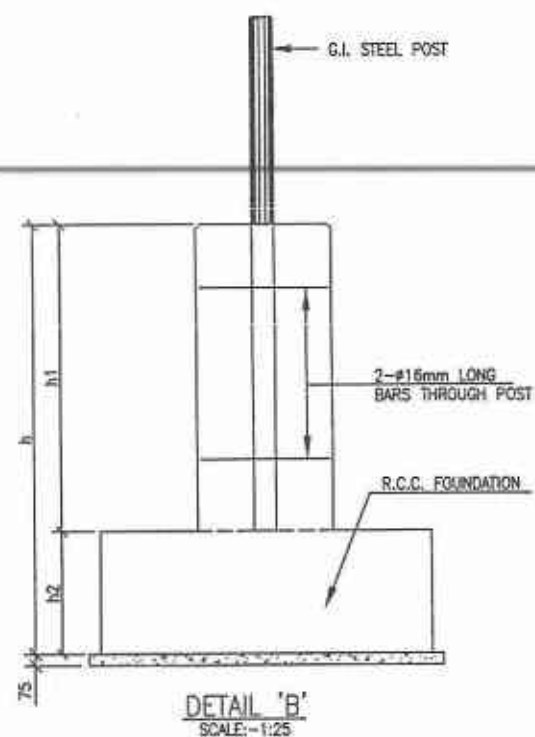
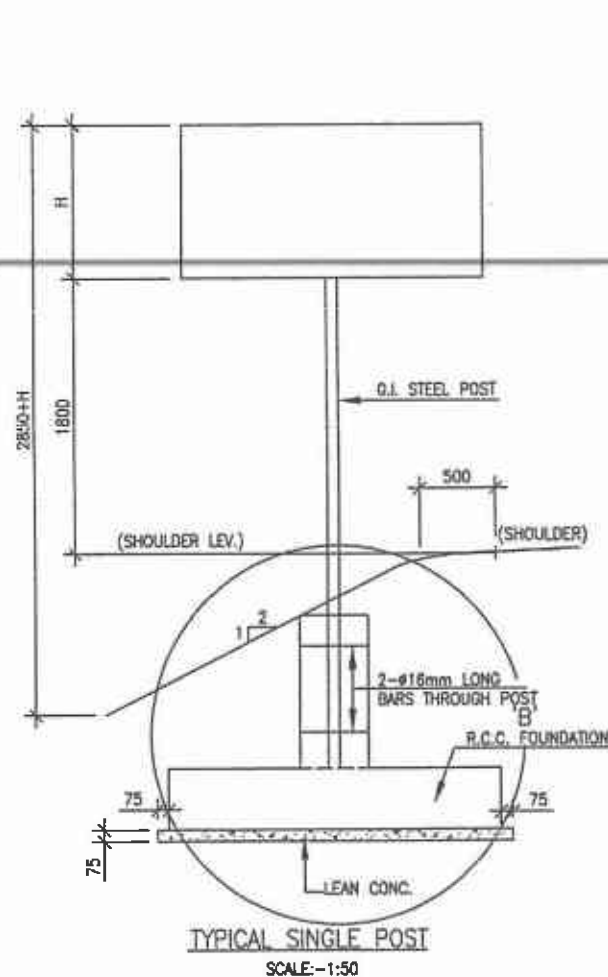


TABLE - 2
FOOTING AREA & REINFORCEMENT SCHEDULE

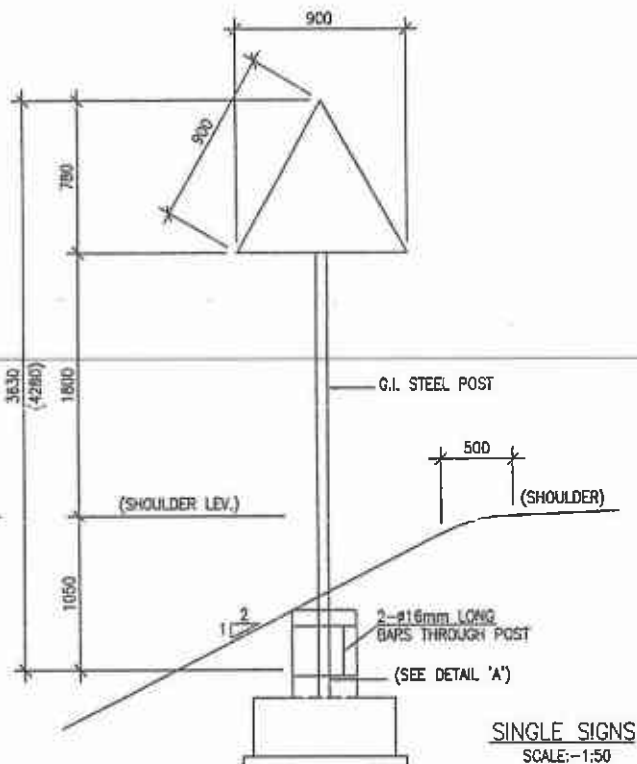
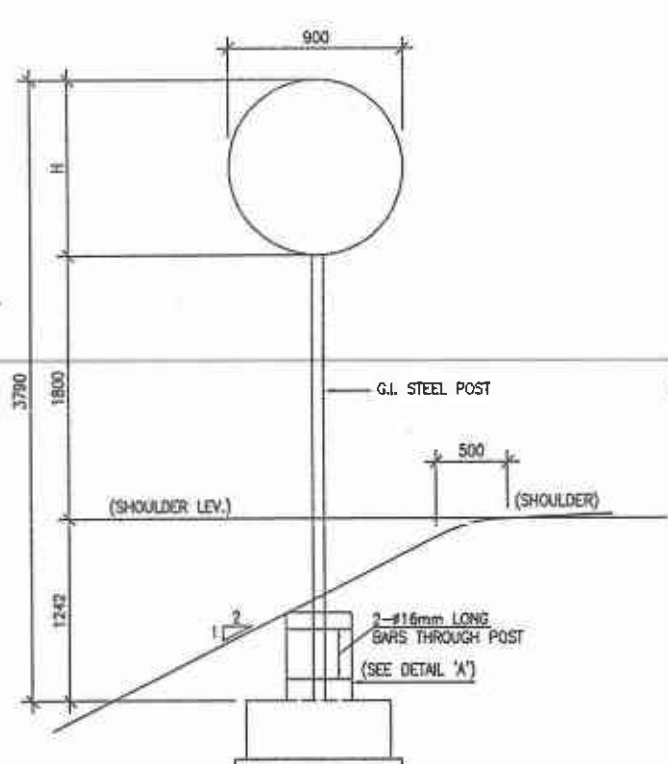
AREA M ²	REINFORCEMENT IN 'X'	REINFORCEMENT IN 'Y'
1.5	12# @ 200 C/C (T & B)	12# @ 200 C/C (T & B)
1.5 < A < 3	12# @ 175 C/C (T & B)	12# @ 175 C/C (T & B)
3 < A < 5	12# @ 175 C/C (T & B)	12# @ 175 C/C (T & B)

TABLE - 1
LIST OF FOUNDATION SIZE

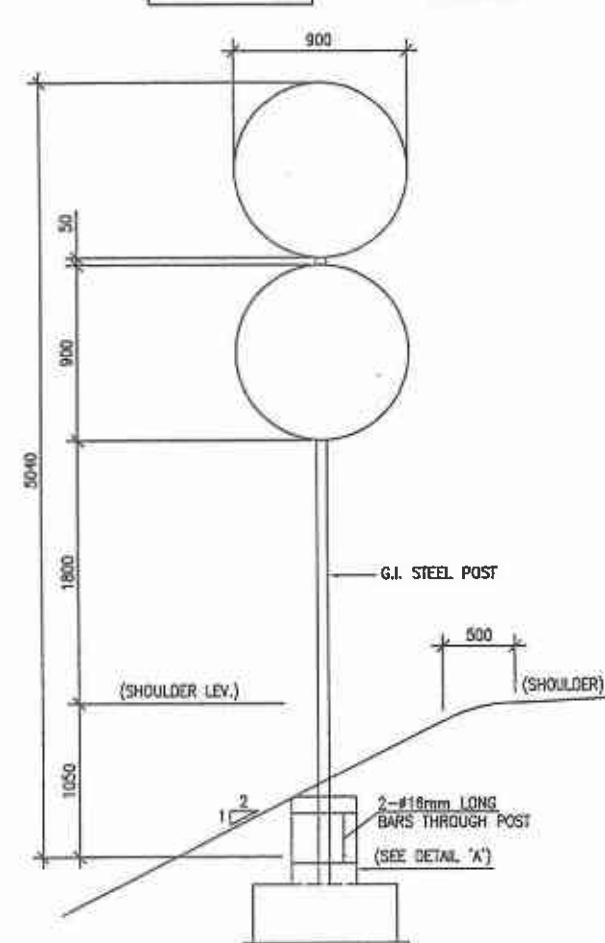
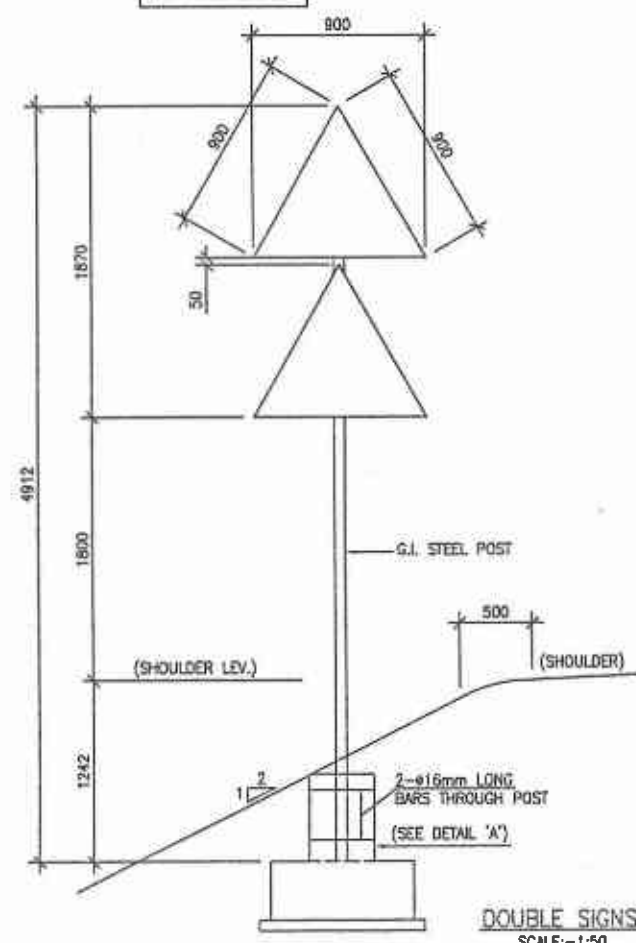
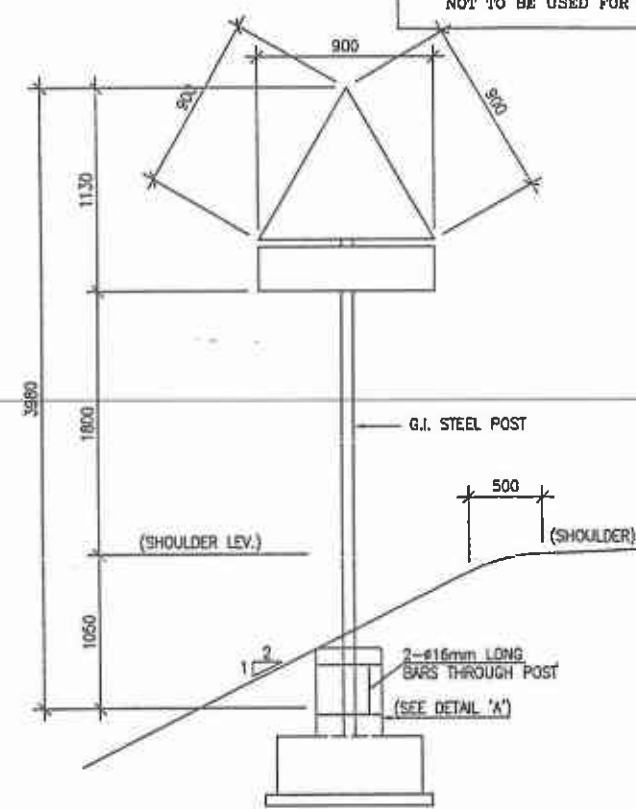
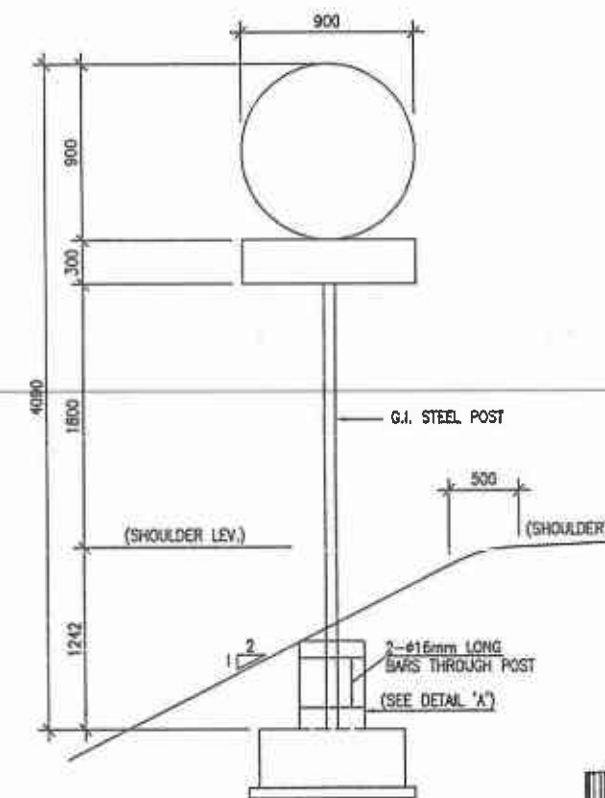
AREA OF SIGN BOARD (M ²)	PEDESTAL SIZE (MM)	WIDTH OF FOOTING 'X' (MM)	LENGTH OF FOOTING 'Y' (MM)	h1 (MM)	h2 (MM)	h (MM)	NUMBER OF POLES	TYPE OF POLES
1.5	450	950	950	600	400	1000	1-#150	ISOLATED
1.5 < A < 3	450	1250	1700	600	400	1000	2-#150	COMBINED
3 < A < 5	450	1350	2250	800	400	1200	3-#150	-

NOTES

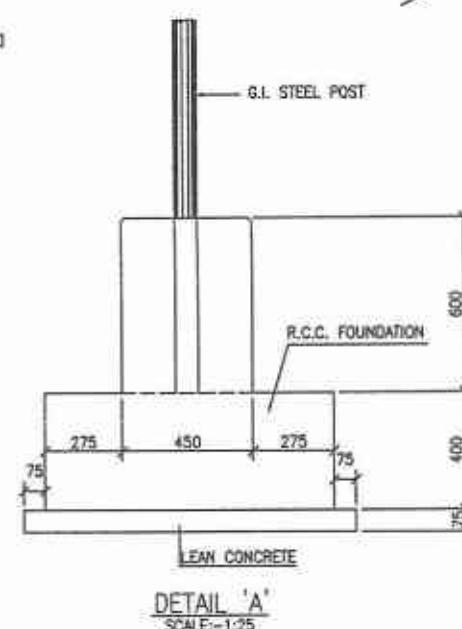
- * ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
- * POST LENGTH AS SHOWN FOR MOTORWAY SIGNS OF 1200mm NOMINAL SIZE FOR RAMPS, POST LENGTH SHALL BE ADJUSTED ACCORDINGLY.
- * CONCRETE FOUNDATION SHALL BE CAST USING CLASS 'A' CONCRETE.
- * SIGN PANELS SHALL BE MADE OF ALUMINUM ALLOY PLATES OF MINIMUM 3mm THICKNESS.
- * ALL SIGN POSTS SHALL BE PAINTED WITH NON-REFLECTORISED BLACK AND WHITE PAINT STRIPES 300mm WIDE.
- * ALL SIGN BACK PANELS SHALL BE PAINTED WITH GRAY ENAMEL PAINT.
- * ALL POSTS SHALL BE 300mm SHORT OF SIGN TOP.
- * CONCRETE SHALL HAVE A MINIMUM CYLINDRICAL STRENGTH OF 3,000 PSI.



SINGLE SIGNS
SCALE:-1:50



DOUBLE SIGNS
SCALE:-1:50
WARNING/REGULATORY (TRIANGLE/CIRCULAR) SIGNS



FOUNDATION SIZE & REINFORCEMENT DETAIL						
PEDESTAL SIZE (MM)	WIDTH OF FOOTING 'X' (MM)	LENGTH OF FOOTING 'Y' (MM)	NUMBER OF POLES	TYPE OF POLES	REINFORCEMENT IN 'X'	REINFORCEMENT IN 'Y'
450	1000	1000	1-#150	ISOLATED	12# @ 200 C/C (T & B)	12# @ 200 C/C (T & B)

- NOTES
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
 - FOR NOTES REFER DRG. NO. TS-06
 - CONCRETE SHALL HAVE A MINIMUM CYLINDRICAL STRENGTH OF 3,000 PSI



TENDER DRAWINGS

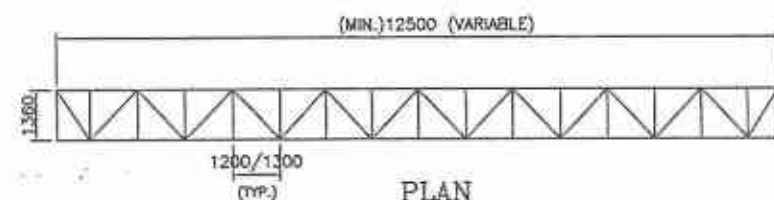
GOVERNMENT OF PAKISTAN
MINISTRY OF COMMUNICATIONS
NATIONAL HIGHWAY AUTHORITY

NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD.

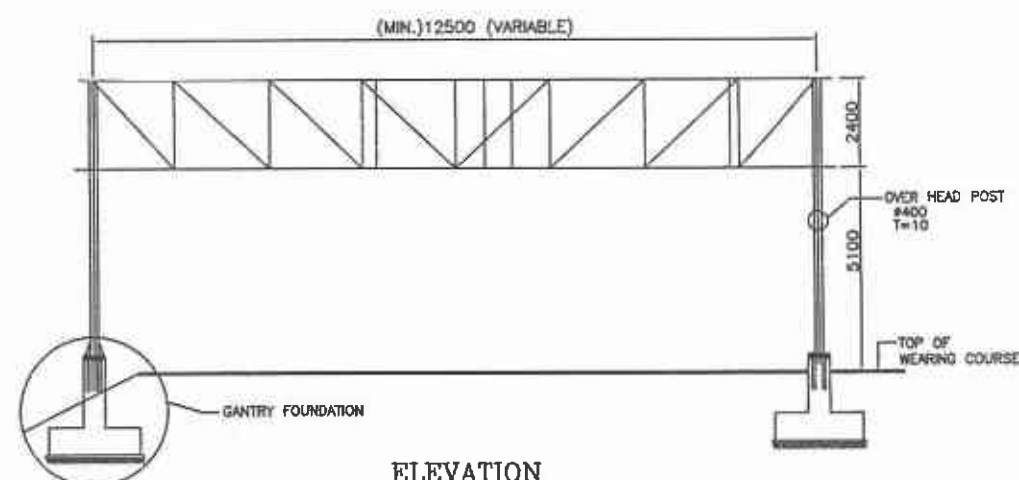
04			DRAWN BY	RAJA SHAFIQ
03			SUBMITTED BY	
02			RECOMMENDED BY	
01			CHD./VER. BY	
REV.	DATE	DESCRIPTION	APPROVED	APPROVED BY

RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

TITLE		SCALE
FOUNDATION DETAILS OF ROAD SIGNS		
DATE	DRAWING NO.	REV.
MARCH 2020	3905/102/TD/	TS-05

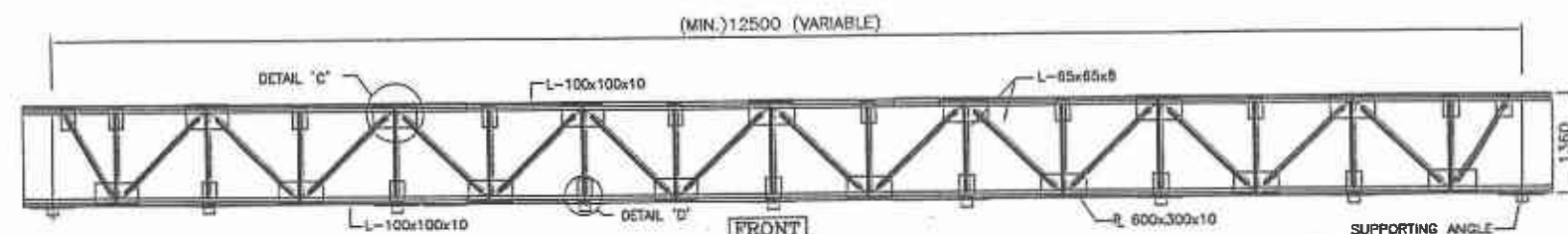


PLAN

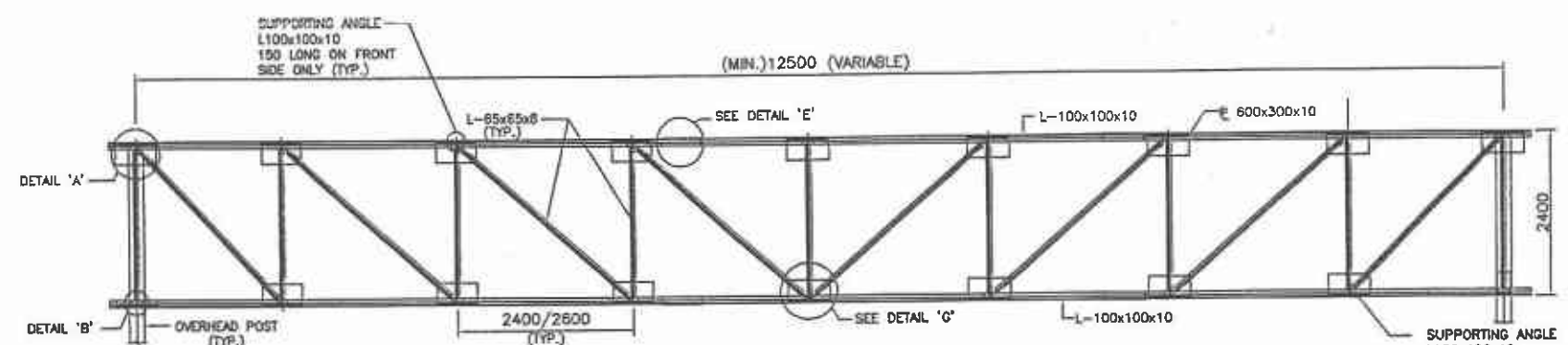


ELEVATION
OVERHEAD INFORMATION SIGN

* TYPICAL ARRANGEMENT FOR GANTRY SIGN. ACTUAL WIDTH IS TO BE DECIDED AS PER ACTUAL LOCATION OF THE ROAD.



TOP & BOTTOM TRUSS - PLAN
SCALE 1:50



FRONT & REAR TRUSS - ELEVATION
SCALE 1:50

TENDER DRAWINGS

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
2. LOCATION OF GANTRY SHALL BE FIXED BY THE ENGINEER AT SITE.
3. GANTRY BEAM AND COLUMNS SHALL BE HATCH - PAINTED WITH LUMINOUS PAINT UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
4. UNLESS OTHERWISE NOTED, CONCRETE SHALL BE CLASSIFIED AS FOLLOWS.
CONCRETE CLASS 28 DAYS (15x30 CM) CYLINDER STRENGTH Kg./sq. Cm
REINFORCED A 210 (3000 psi)
5. ALL STRUCTURAL STEEL (PLATES, SHEET, CHANNELS AND ANGLES etc. SHALL CONFORM TO ASTM A-36 OR EQUIVALENT WITH MINIMUM YIELD STRENGTH OF 248 Kg./Sq. CM. (36,000 psi)
6. ALL WELDING SHALL CONFORM TO THE APPLICABLE PROVISIONS OF A.W.S (AMERICAN WELDING SOCIETY) CODE. ALL WELDING ELECTRODES SHALL CONFORM TO ASTM NO. E 70XX.
7. MINIMUM SIZE OF FILLET WELD SHALL BE 7mm. EXCEPT OTHERWISE NOTED.
8. ALL INACCESSIBLE STRUCTURAL STEEL SECTIONS SHALL BE GIVEN TWO COATS OF RED-OXIDE PAINT BEFORE FABRICATION. ALL EXTERIOR FACES SHALL BE PAINTED WITH TWO COATS OF REDOXIDE PAINT AFTER FABRICATION AND ERECTION, AS PER DIRECTION OF THE ENGINEER.
9. CONTRACTOR SHALL SUBMIT TO THE ENGINEER, FABRICATION DRAWING WITH COMPLETE DETAILS OF MATERIAL ALONG WITH WEIGHT AND SIZES FOR APPROVAL, BEFORE PROCEEDING WITH CONSTRUCTION.
10. THE MINIMUM CONCRETE COVER OF 75mm SHALL BE PROVIDED FOR STEEL IN FOOTING.
11. THE BASE PLATE OF THE COLUMN SHALL BE LEVELED AND THEN GROUTED WITH NON SHRINK GROUT USING STANDARD APPROVED PROCEDURE.
12. ALL ANCHOR BOLTS SHALL BE HOT DIPPED GALVANIZED.
13. JOINT IN THE MAIN STEEL PIPE MAY BE OF FLANGE TYPE SUBJECT TO THE ENGINEERS APPROVAL.
14. CONTRACTOR MAY USE ALUMINIUM PLATE (3mm THICK) FOR SIGN FACE.
15. THE SIGN PLATE SHOULD BE RIVETED TO STEEL MEMBER OF SUPPORTING FRAME.
16. NUTS & BOLTS FOR CLAMPS SHALL BE SPOT WELDED AFTER TIGHTENING.
17. FOR DETAILS REF. DRG. NO. TS-07 & TS-08



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03		Project Manager	SUBMITTED BY	
02		M/S NESPAK	RECOMMENDED BY	
01			CHK./VER. BY	
REV.	DATE	DESCRIPTION	APPROVED	APPROVED BY

RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

TITLE GENERAL ARRANGEMENT
OF OVERHEAD GANTRY SIGN

DATE	DRAWING NO.	REV.
MARCH 2020	3905/102/TD/ TS-06	



Diagram illustrating the cross-section of the composite wall assembly, showing the PERIMETER L-50x50x5, U-BOLTS #12, SPACER BAR, ALUMINIUM SHEET 3mm (THICK), and L 50x50x5 150 LONG.

Figure 1 shows a cross-sectional view of a rectangular plate. The plate has a total width of 100 and a total height of 50. A central hole with a diameter of 10 is located. The hole is positioned 90 units from the left edge and 50 units from the bottom edge.

Technical drawing of a window frame assembly. The drawing shows a cross-section of the frame with the following dimensions and components:


- PERIMETER ANGLE**: L50x50x5
- SUPPORTING ANGLE**: L 100x100x10, 150 LONG
- Dimensions**:
 - 100 (total width of the supporting angle)
 - 30 (width of the perimeter angle)
 - 70 (width of the supporting angle)
 - E=600x300x10 (dimension of the glass unit)

Technical drawing of a corner joint showing dimensions and material specifications:

- Top horizontal member: $L=100 \times 100 \times 10$
- Vertical member: $L=65 \times 85 \times 8$
- Horizontal member on the right: $L=65 \times 65 \times 6$
- Horizontal member below the vertical one: $L=600 \times 300 \times 10$
- Horizontal member above the vertical one: $L=600 \times 300 \times 10$
- Dimension: 300 (width of the horizontal member on the right)

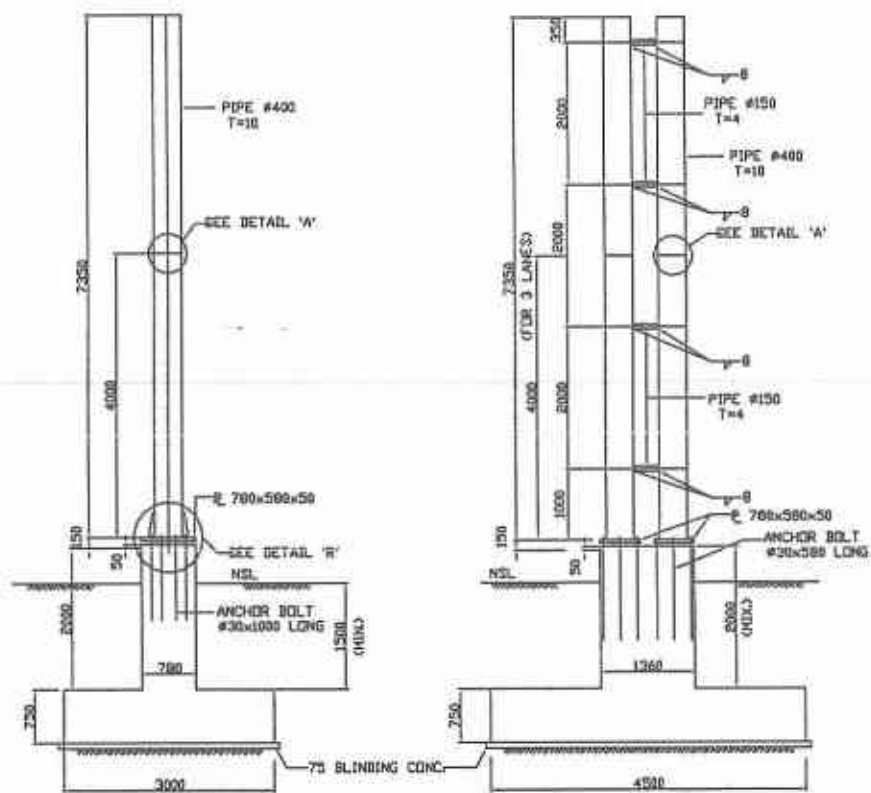
TENDER DRAGGINGS

LESS OTHERWISE SPECIFIED
DWG. NO. 18-04 * PS-100

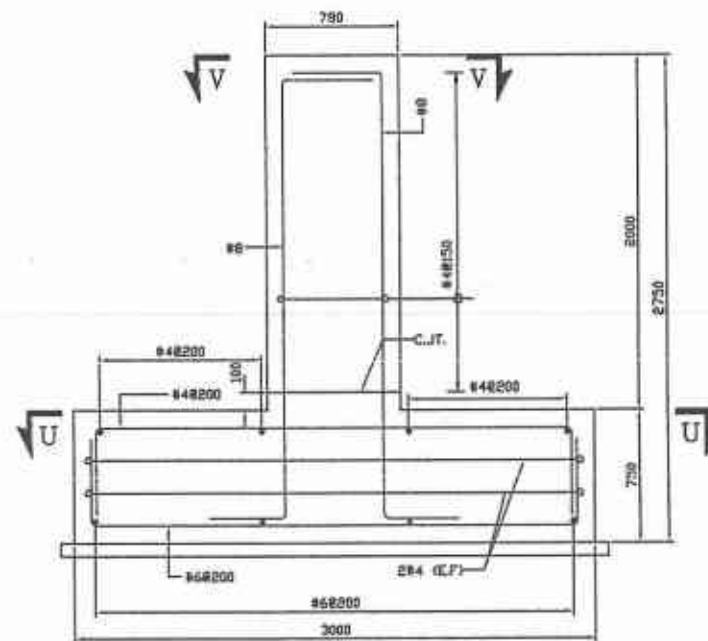


National Highway Authority
P&CA
Govt. of Pakistan

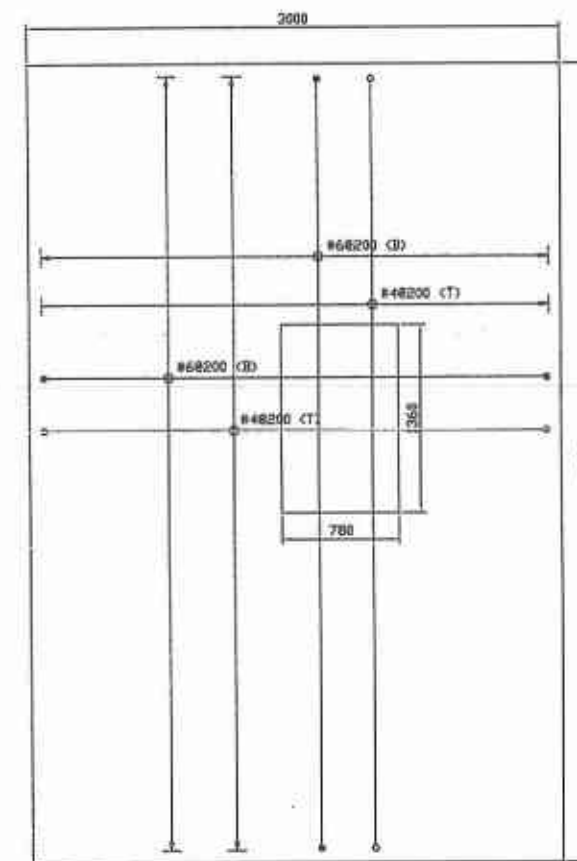
TENDER DRAWING
NOT TO BE USED FOR CONSTRUCTION



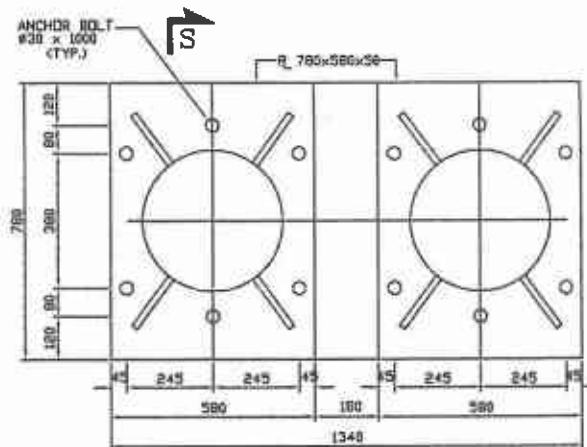
FRONT VIEW SIDE VIEW
OVER HEAD POST (IG706)



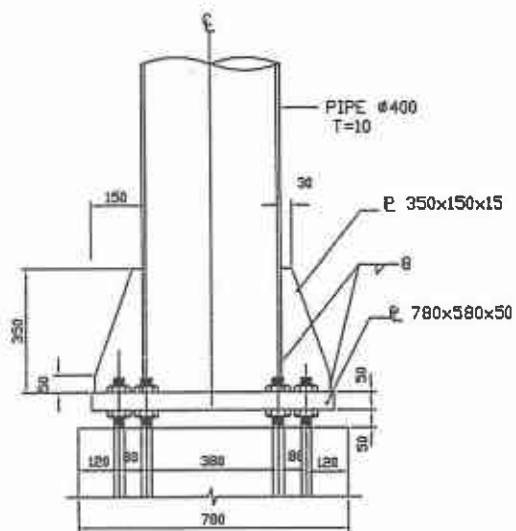
FRONT VIEW
SCALE = 1/20



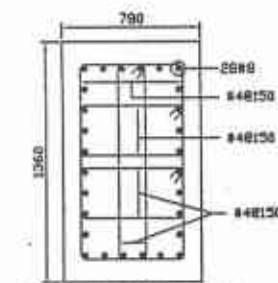
SEC. PLAN U-U
SCALE = 1/20



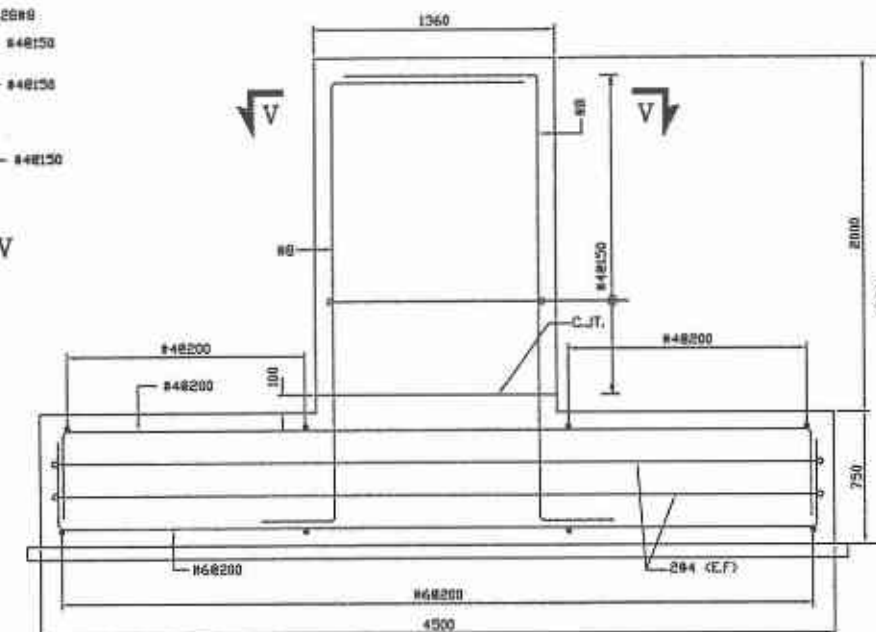
LS DETAIL 'R'-PLAN
SCALE = 1/10



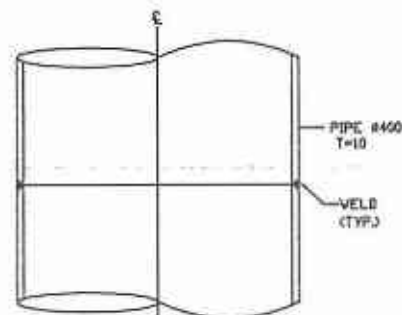
SECTION S-S
SCALE = 1/10



SEC. PLAN V-V
SCALE = 1/20



SIDE VIEW
SCALE = 1:20



DETAIL 'A'
SCALE = 1:5

RENDER DRAWINGS

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.



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NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD.

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03				SUBMITTED BY	
02				RECOMMENDED BY	
01				CHD./VER. BY	
REV.	DATE	DESCRIPTION	APPROVED	APPROVED BY	

RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

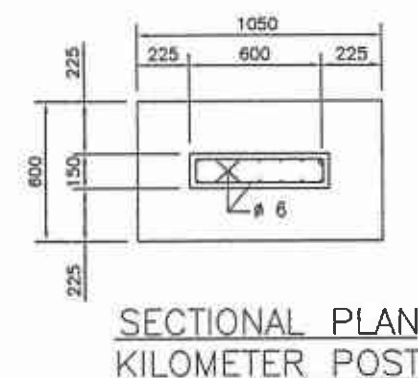
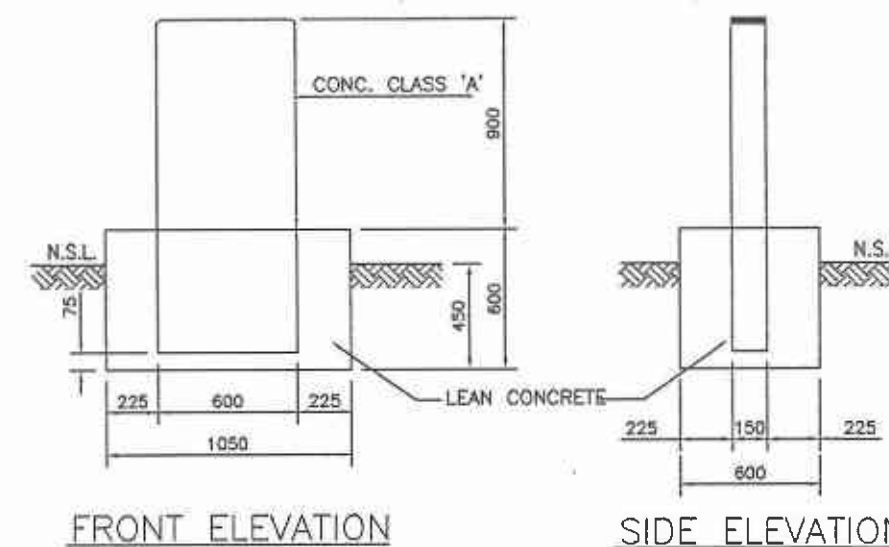
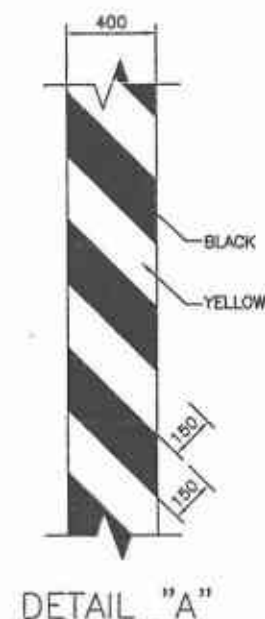
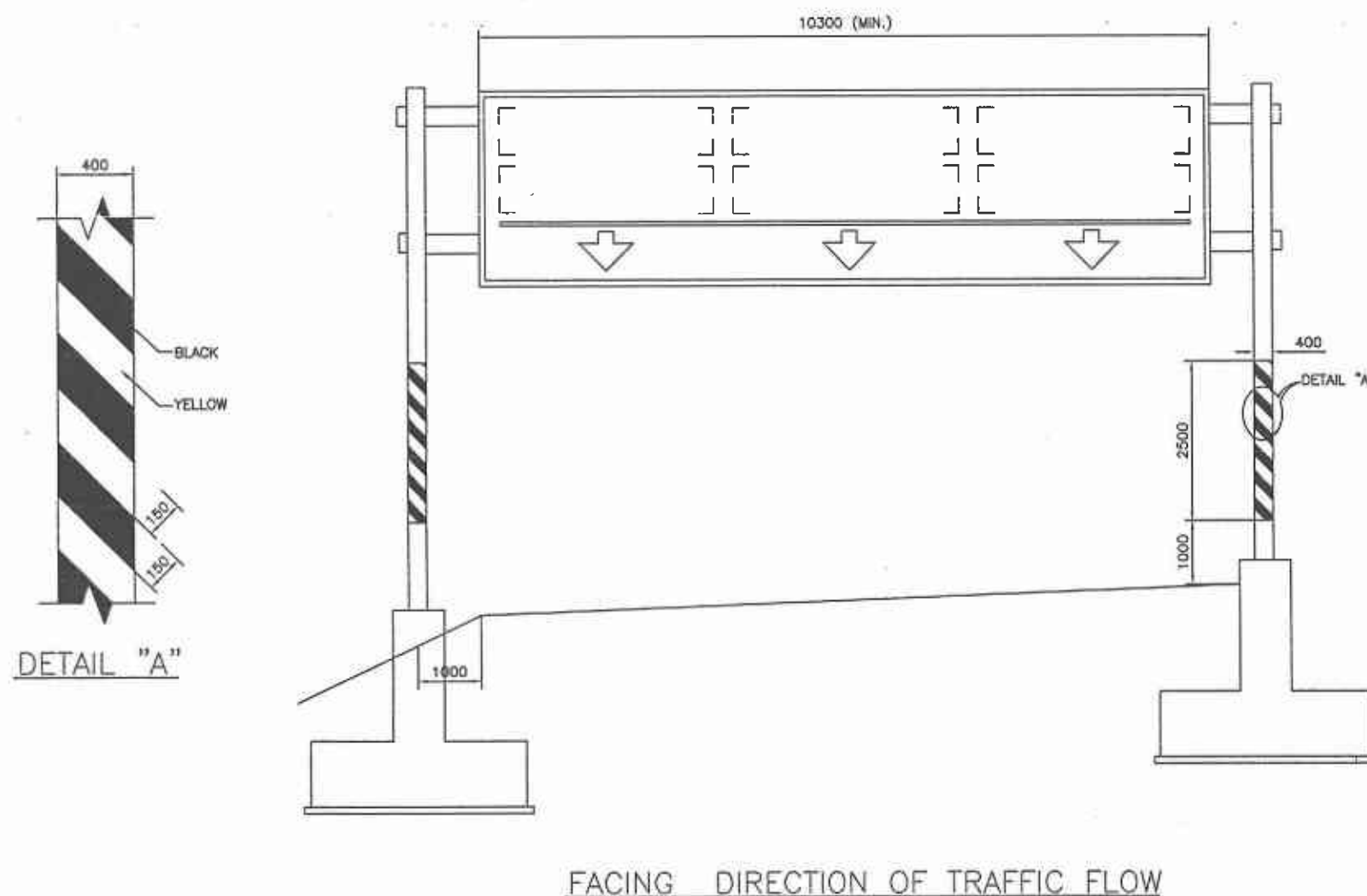
TITLE	GANTRY SIGN FOUNDATION DETAIL
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DATE
MARCH 2020

DRAWING NO.	3905/102/TD/ TS-08
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SCALE

REV.



TENDER DRAWINGS

NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
2. REFLECTIVE MARKING IS OF TP PAINT.
3. STICK YELLOW REFLECTIVE SHEETING BEFORE STICKING BLACK REFLECTIVE SHEETING.

GOVERNMENT OF PAKISTAN
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NATIONAL ENGINEERING SERVICES
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04	PROJECT MANAGER	DRAWN BY	RAJA SHAFIQ
03	M/S NEESPAC	SUBMITTED BY	
02		RECOMMENDED BY	
01		CHD./VER. BY	
REV.	DATE	DESCRIPTION	APPROVED

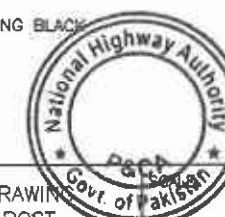
RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

TITLE
MARKING DESIGN DRAWING
AND KILOMETER POST

DATE
MARCH 2020

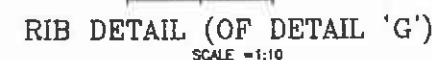
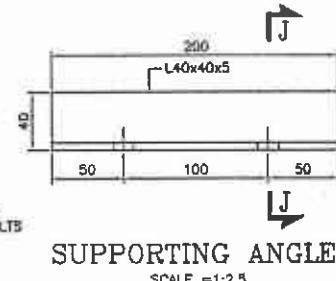
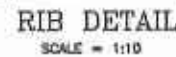
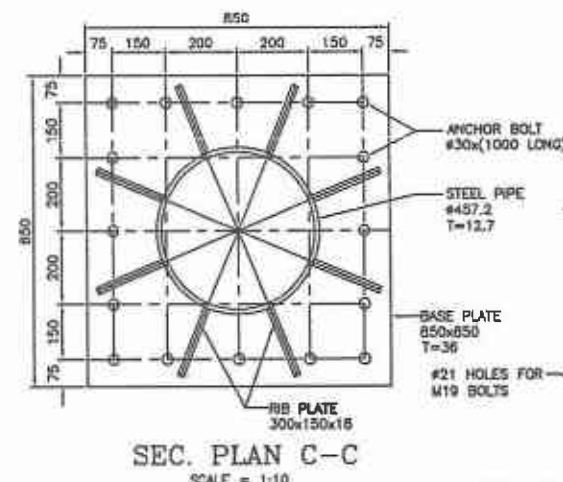

DRAWING NO.
3905/102/TD/

REV.
TS-09



Technical drawing of a pipe support assembly. The drawing shows a side view of a vertical pipe with a horizontal supporting plate and a clamp plate. The pipe is labeled "PIPE Ø273x5.27". The supporting plate is labeled "4-SUPPORTING PLATE 300x2390x10 @1000 C/C". The clamp plate is labeled "4-CLAMP PLATE 300x10x960". The assembly is secured with "BOLTS" and a "WELD". A dimension "L=50x50x5" is indicated at the top. A callout points to the end view with the text "SEE ENLARGED VIEW 'H'".

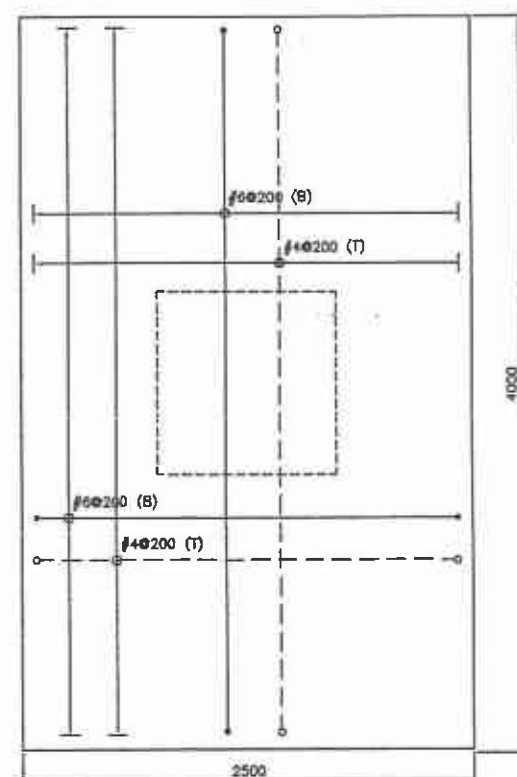
Technical drawing of a vertical support structure for a circular tank. The drawing shows a vertical pipe (PIPE #27.3x9.27) supported by a vertical plate (CLAMP PLATE 100x10x960) and a horizontal plate (4-SUPPORTING PLATE 300x2300x10). The structure is bolted (BOLTS) and welded (WELD). A circular tank is shown in cross-section, with a centerline indicated. Dimensions include L=50x50x5, 1000 C/C, 200 LONG, 2 EACH x4, and T=40x40x5. A note indicates 'IN PLATE ALUMINUM SHEET'.



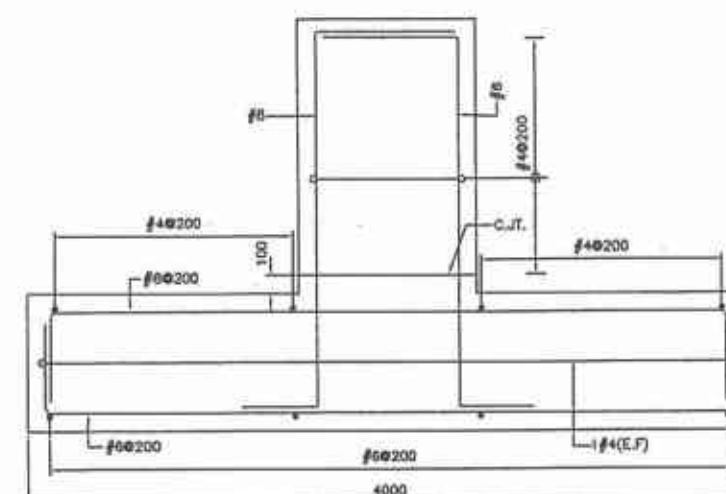
INTERNATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD.

RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

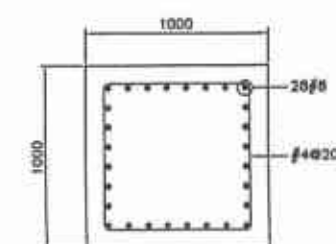
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DATE MARCH 2020	DRAWING NO. 3905/102/TD/ TS-10	REV.



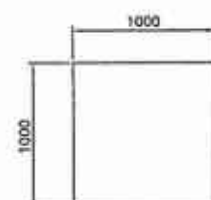
SEC. PLAN N-N
SCALE = 1:20



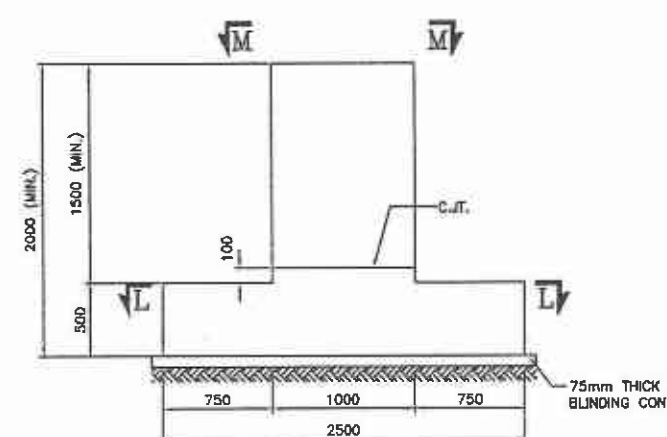
SIDE VIEW
SCALE = 1:20



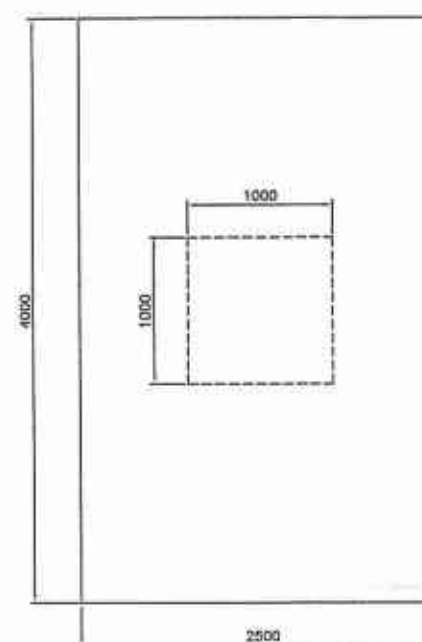
SEC. PLAN P-P
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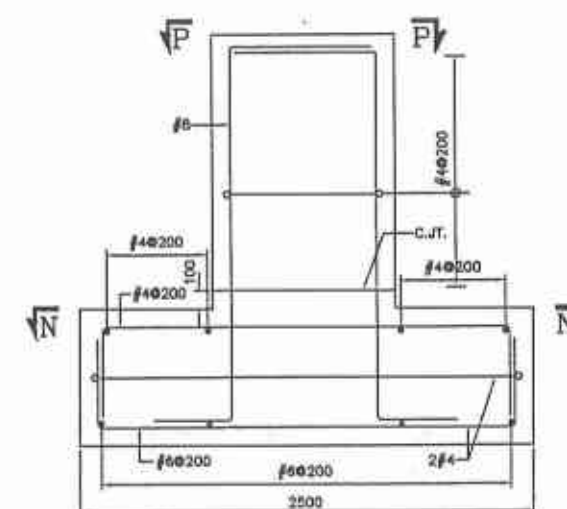
SEC. PLAN M-M
SCALE = 1:25



FRONT VIEW
FOUNDATION DETAIL-1' (CONC. OUTLINE)
SCALE = 1:25



SEC. PLAN L-L
SCALE = 1:25



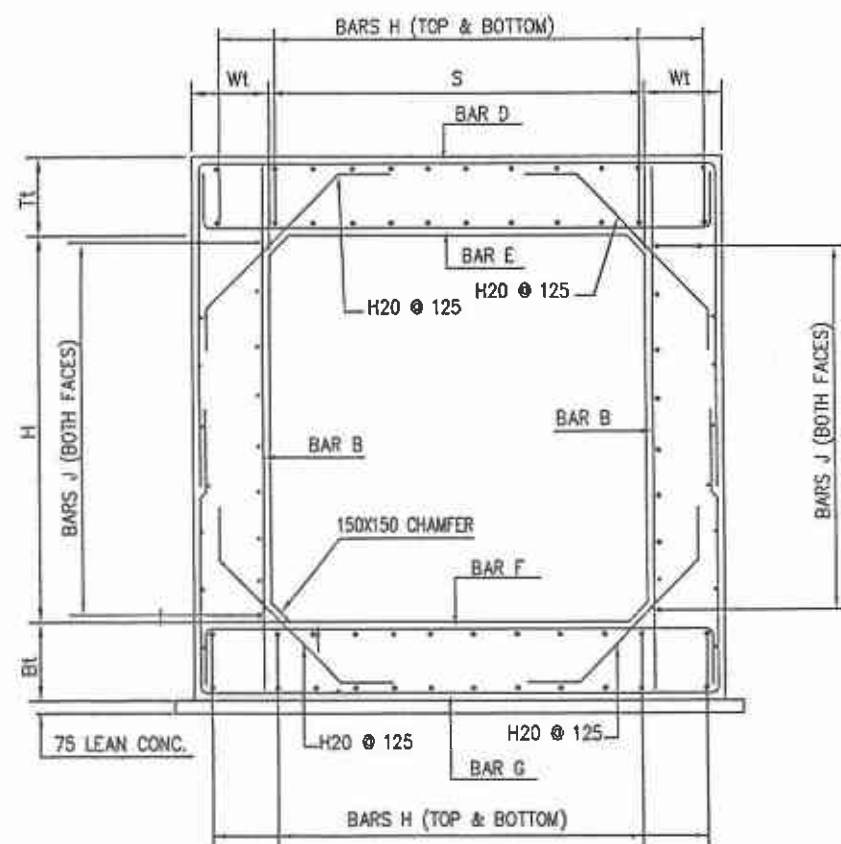
FRONT VIEW
FOUNDATION DETAIL-1' (REINFORCEMENT)
SCALE = 1:20



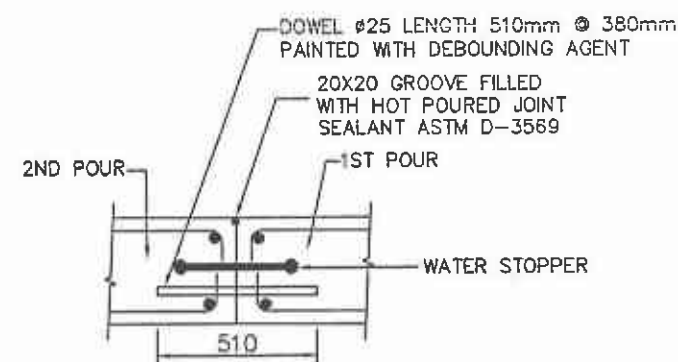
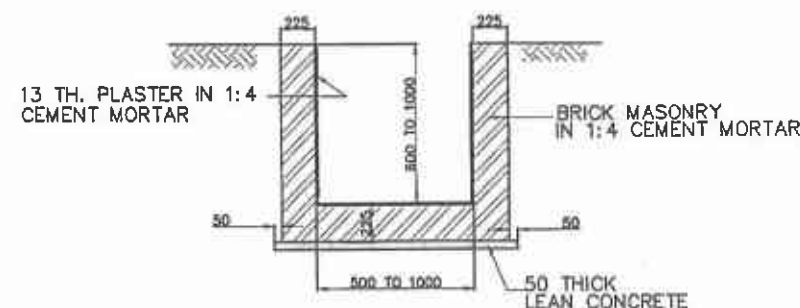
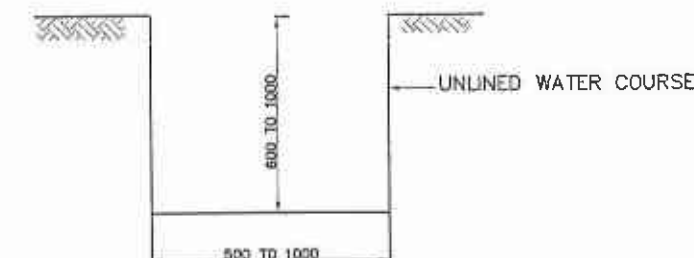
- NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
 2. FOR GENERAL NOTES REFER DWG. NO. TS-07.
 3. FOR GANTRY DETAILS REFER TO RELEVANT GANTRY DRAWINGS.

REINFORCEMENT SCHEDULE OF R.C.C. COVERED DRAIN

NO. OF CELL	SPAN (M)	CLEAR HEIGHT (M)	Tt. (MM)	Bt. (MM)	Wt. (MM)	BAR MARK B	BAR MARK D	BAR MARK E	BAR MARK F	BAR MARK G	BAR MARK H	BAR MARK J
1	1.00	1.00	225	225	225	H12 @ 150 c/c	H12 @ 125 c/c	H16 @ 200 c/c	H12 @ 125 c/c	H12 @ 125 c/c	H12 @ 150 c/c	H12 @ 150 c/c

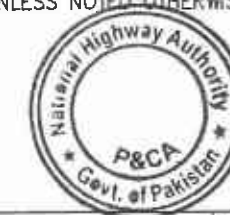


TYPICAL REINF. DRAIN SECTION

DETAIL OF
CONTRACTION JOINTTYPICAL X- SECTION OF
RELOCATED LINED WATER COURSETYPICAL X- SECTION OF
RELOCATED UNLINED WATER COURSE

NOTES:—

- * CLEAR COVER TO REINFORCEMENT IS 50mm
- * THE CLEAR CONC. COVER TO SURFACES HAVING CONTACT WITH THE SOIL IS 75mm
- * ALL BARS ARE (H.Y.S) HIGH YIELD DEFORMED STEEL WITH $f_y=410 \text{ N/mm}^2$ (60KSI)
- * UNLESS OTHERWISE SHOWN ON THE DRAWINGS LAPS IN REINFORCING STEEL BARS SHALL BE STAGGERED, MINIMUM LENGTH OF LAP SHALL BE 48 TIMES THE SMALLER BAR DIAMETER SPICED.
- * CONCRETE SHALL HAVE A MINIMUM 28 DAYS CYLINDER STRENGTH OF 4000 psi
- * LEAN CONCRETE SHALL HAVE A MINIMUM 28 DAYS CYLINDER STRENGTH OF 100 Kg/cm²
- * ALL CONCRETE FACES BURIED IN SOIL BE PAINTED WITH TWO COATS OF HOT BITUMEN.
- * CONTRACTION JOINT SHOULD BE PROVIDED FOR DRAIN LENGTH MORE THAN 12.00 M.
- * DRAIN IS DESIGNED FOR BEARING CAPACITY OF 1T/ SF.
- * ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.



GOVERNMENT OF PAKISTAN
MINISTRY OF COMMUNICATIONS
NATIONAL HIGHWAY AUTHORITY

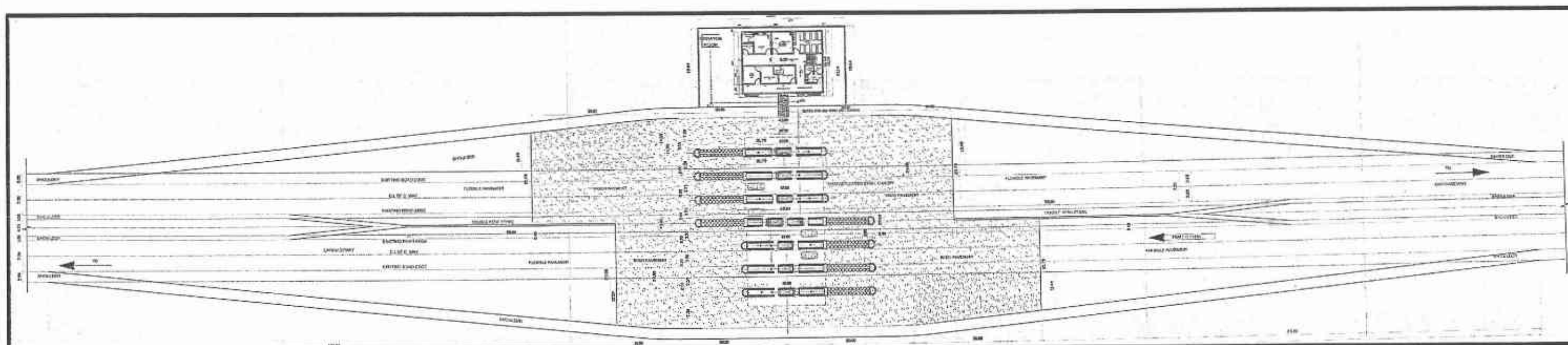
NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD.

04				DRAWN BY	RAJA SHAFIQ
03				SUBMITTED BY	
02				RECOMMENDED BY	
01				CHD./VER. BY	
REV.	DATE	DESCRIPTION	APPROVED	APPROVED BY	

JAWADUL HAQ
Project Manager
M/S NESPAC



RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

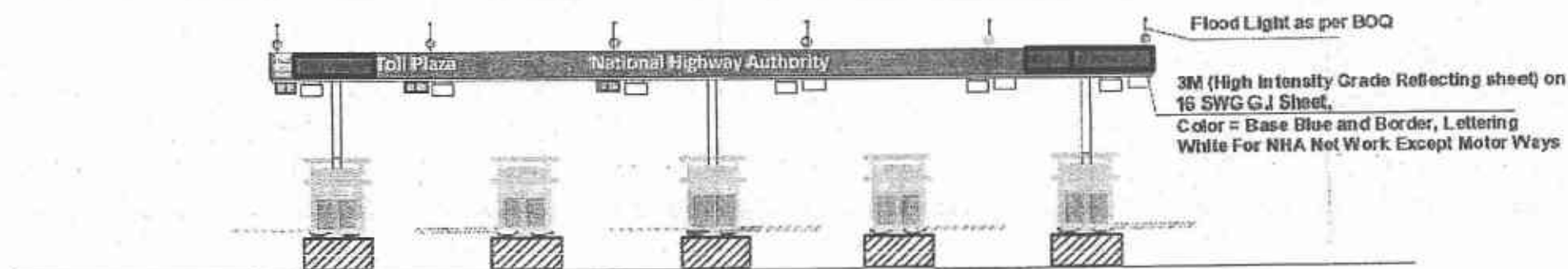
TITLE	DETAILS OF R.C.C. DRAIN & LINED WATER COURSE SECTION AT LINK ROAD	SCALE	
DATE	MARCH 2020	DRAWING NO.	3905/102/TD/ DR-01
REV.			



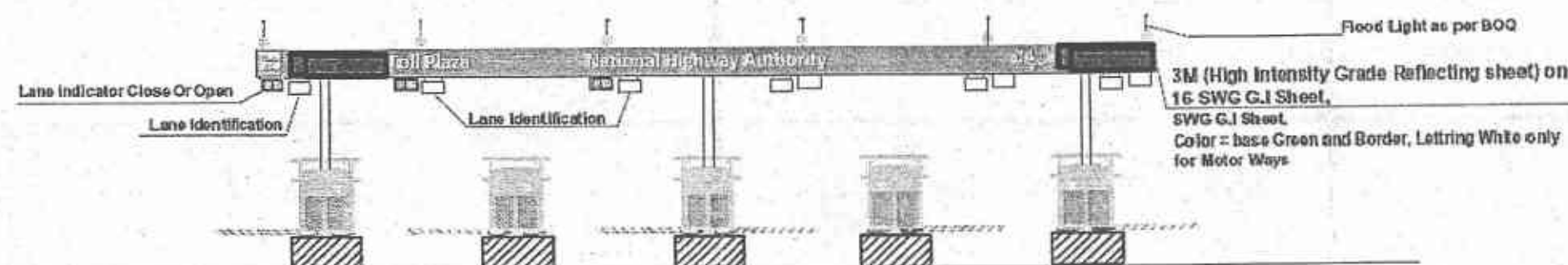
TENDER DRAWINGS



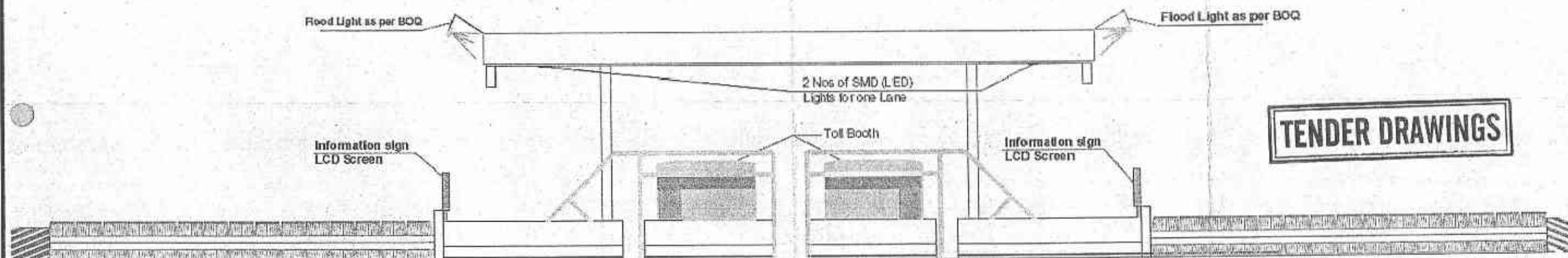
 <p>GOVERNMENT OF PAKISTAN MINISTRY OF COMMUNICATIONS NATIONAL HIGHWAY AUTHORITY</p>	 <p>NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD.</p>	<p>04 03 02 01</p> <p>JAWAD UL HAQ Project Manager M/S NESPAC</p>	<p>DRAWN BY: RAJA SHAFIQ SUBMITTED BY: RECOMMENDED BY: CHD./VER. BY: APPROVED BY:</p>	<p>RATODERO ~ RAJANPUR ROAD SECTION-V (ROJHAN TO RAJANPUR)</p>	<p>TITLE: PLAN DATE: MARCH 2020 DRAWING NO.: 3905/102/TD/ TP-01</p>	<p>SCALE: REV.</p>
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ELEVATION NO. 1 STANDARD COLOR FOR NHA NET WORK EXCEPT MOTOR WAYS

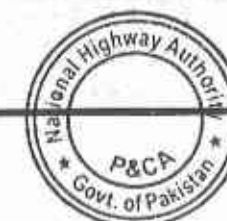




ELEVATION NO. 1 STANDARD COLOR FOR MOTOR WAYS

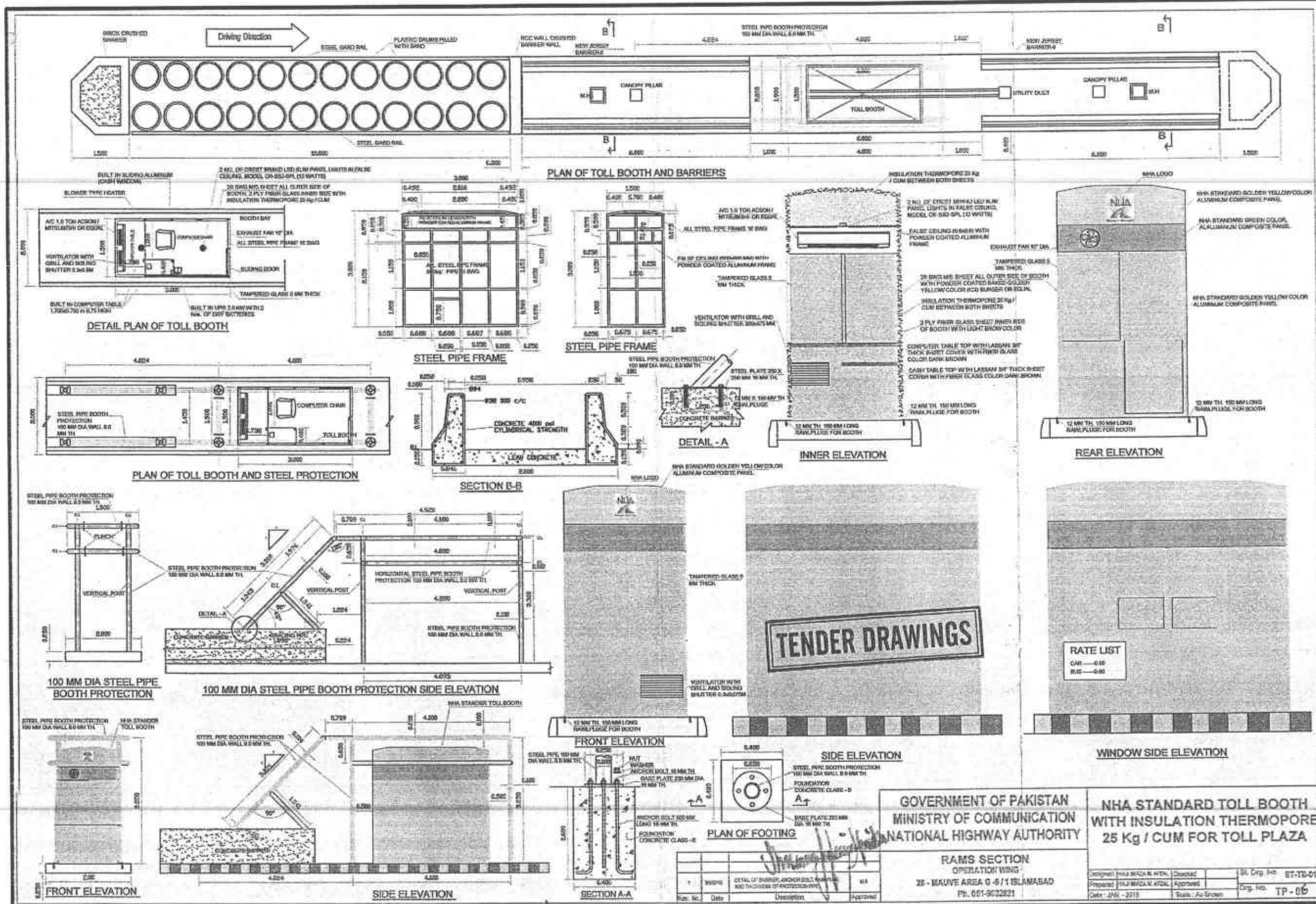


ELEVATION NO. 2

TENDER DRAWINGS



	GOVERNMENT OF PAKISTAN MINISTRY OF COMMUNICATIONS NATIONAL HIGHWAY AUTHORITY		NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD.	04			DRAWN BY	RAJA SHAFIQ	RATODERO ~ RAJANPUR ROAD SECTION-V (ROJHAN TO RAJANPUR)	TITLE		8 LANE TOLL PLAZA	SCALE		
				03			SUBMITTED BY								
				02			RECOMMENDED BY								
				01			CHD./VER. BY								
				REV.	DATE	DESCRIPTION	APPROVED	APPROVED BY							
										DATE	MARCH 2020	DRAWING NO.	3905/102/TD/ TP-02	REV.	



RATE LIST
CAR - 0.00
BUS - 0.00

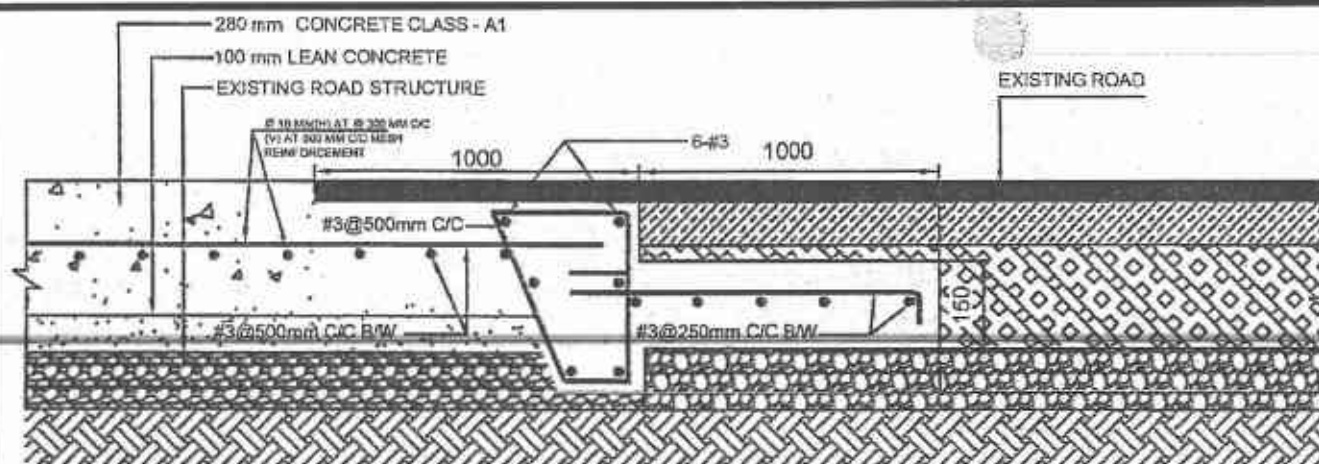
TENDER DRAWINGS

GOVERNMENT OF PAKISTAN
MINISTRY OF COMMUNICATION
NATIONAL HIGHWAY AUTHORITY
RAMS SECTION
OPERATION WING
26 - MAJIVE AREA G-6/1 ISLAMABAD
Ph. 651-902821

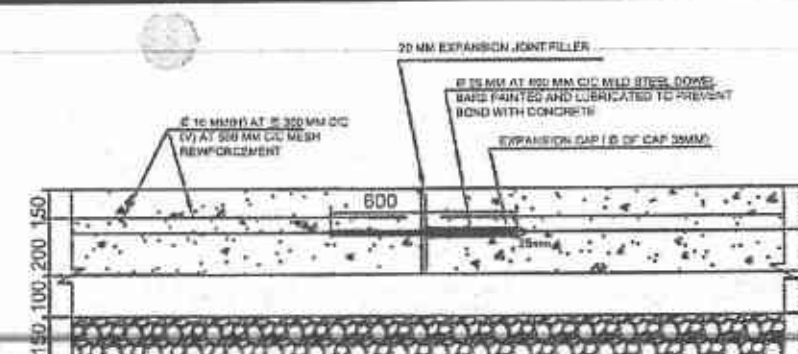
NHA STANDARD TOLL BOOTH
WITH INSULATION THERMOPORE
25 Kg / CUM FOR TOLL PLAZA
Designed: NHA/MDA/M/ATL Checked: SI Orig. No. ST-10-01
Prepared: NHA/MDA/M/ATL Approved: Drg. No. TP-06
Date: 2019 Scale: As Shown



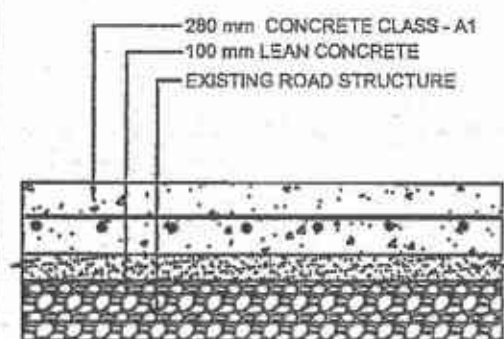
<p>GOVERNMENT OF PAKISTAN MINISTRY OF COMMUNICATIONS NATIONAL HIGHWAY AUTHORITY</p>	<p>NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD.</p>	<p>JAWAD UL HAQ Project Manager M/S NESPAK</p>	<p>DRAWN BY: RAJA SHAFIQ SUBMITTED BY: RECOMMENDED BY: CHG./VER. BY: APPROVED BY:</p>	<p>RATODERO ~ RAJANPUR ROAD SECTION-V (ROJHAN TO RAJANPUR)</p>	<p>TITLE: NHA STANDER TOLL BOOTH WITH INSULATION THERMOPORE 25kg/ CUM FOR TOLL PLAZA DATE: MARCH 2020 DRAWING NO.: 3905/102/TD/ TP-03</p>	<p>SCALE: REV:</p>
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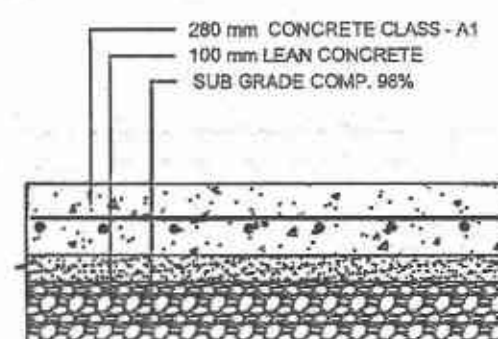
TYP. JOINT AT JUNCTION OF RIGID AND EXISTING ASPHALT PAVEMENTS



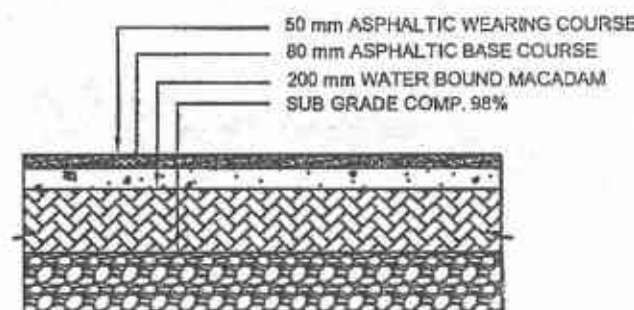
TYPICAL DETAIL OF REINFORCEMENT FOR RIGID PAVEMENT (EXPANSION JOINT AT EVERY 10 M)



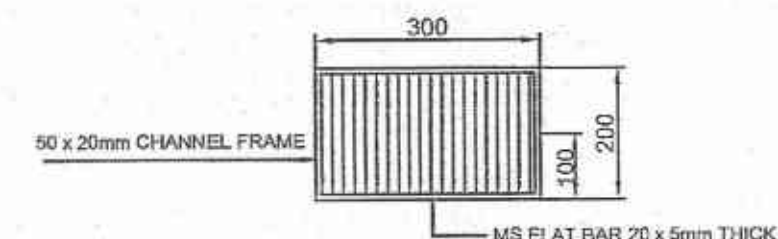
TYPICAL CROSS SECTION OF (RIGID) PAVEMENT ON EXISTING PAVEMENT STRUCTURE



TYPICAL CROSS SECTION OF (RIGID) PAVEMENT IN WINDING PORTION

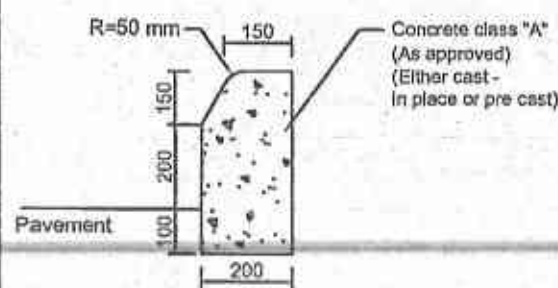


TYPICAL CROSS SECTION OF FLEXIBLE PAVEMENT IN WINDING PORTION

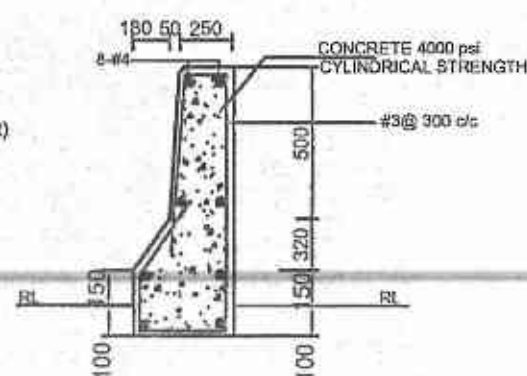


PLAN OF GRATING FOR RAIN WATER INLET

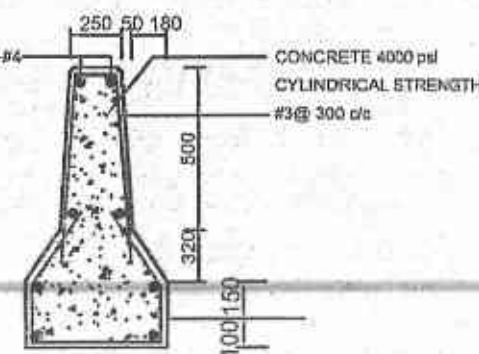
TENDER DRAWINGS



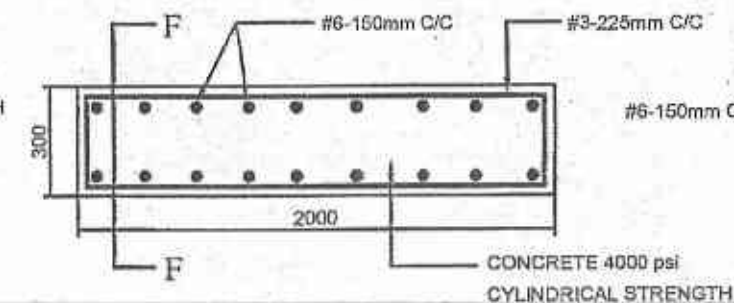
DETAIL OF KERB STONE



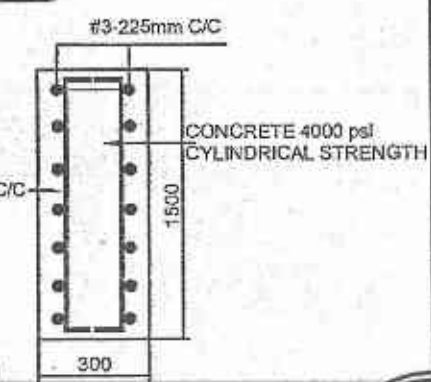
DETAIL OF MODIFIED JERSEY BARRIER



DETAIL OF STANDARD JERSEY BARRIER



DETAIL OF RCC WALL



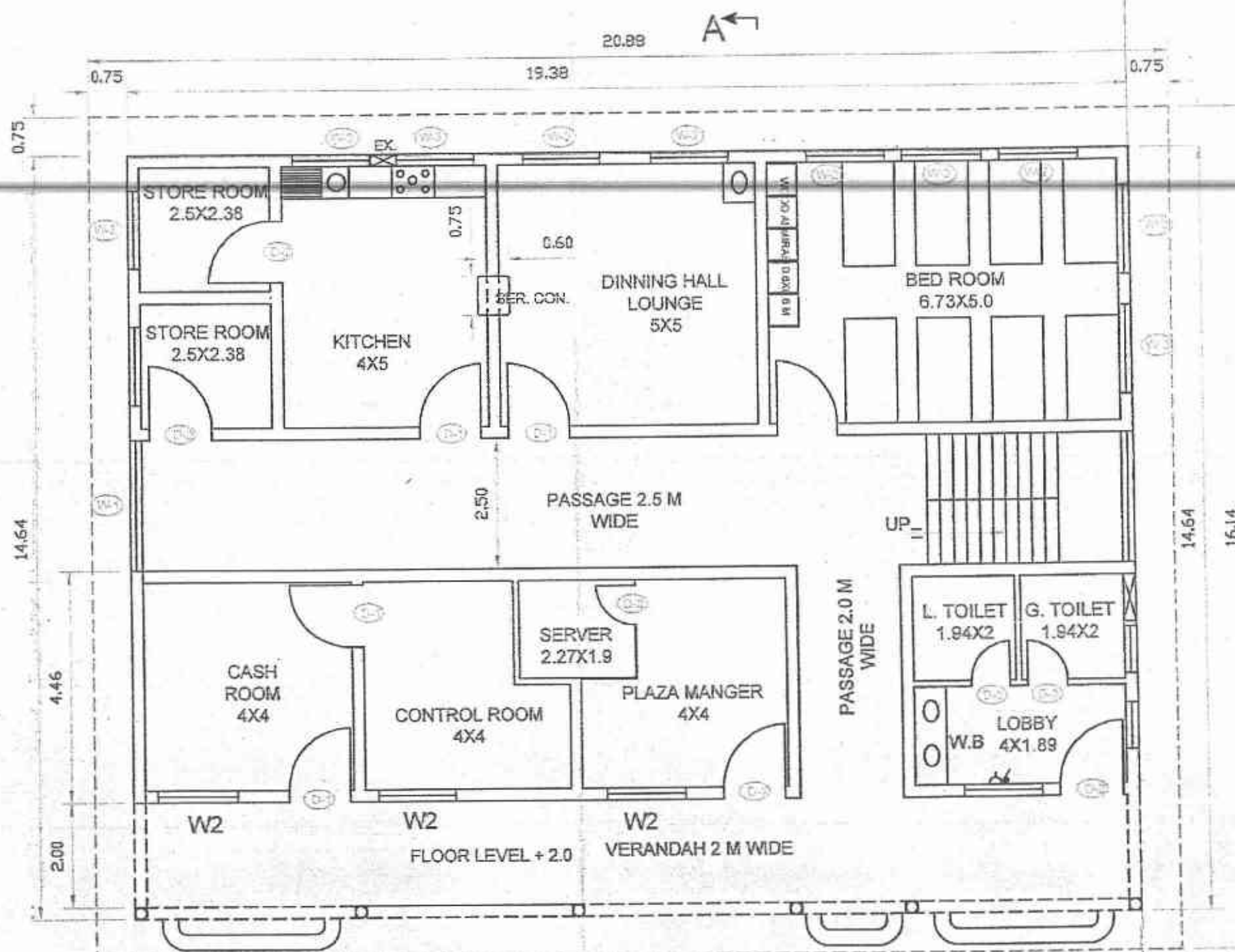
SECTION AT F-F

GOVERNMENT OF PAKISTAN
MINISTRY OF COMMUNICATION

8 LANE TOLL PLAZA



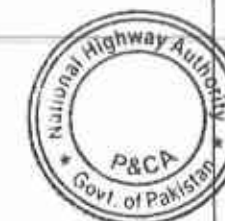
<p>GOVERNMENT OF PAKISTAN MINISTRY OF COMMUNICATIONS NATIONAL HIGHWAY AUTHORITY</p>	<p>NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD.</p>	<p>04 JAWADUL HAQ 03 Project Manager 02 M/S NESPAK 01</p>	<p>DRAWN BY RAJA SHAFIQ SUBMITTED BY RECOMMENDED BY CHD./VER. BY APPROVED BY</p>	<p>RATODERO ~ RAJANPUR ROAD SECTION-V (ROJHAN TO RAJANPUR)</p>	<p>TITLE DATE MARCH 2020 DRAWING NO. 3905/102/TD/ TP-04 SCALE REV.</p>
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DOOR & WINDOW	
CILL	DESCRIPTION
FL	ALUMINUM+GLASS
	STEEL FRAM+WOOD

OFFICE & RESIDENTIAL BUILDING GROUND FLOOR PLAN

TENDER DRAWINGS



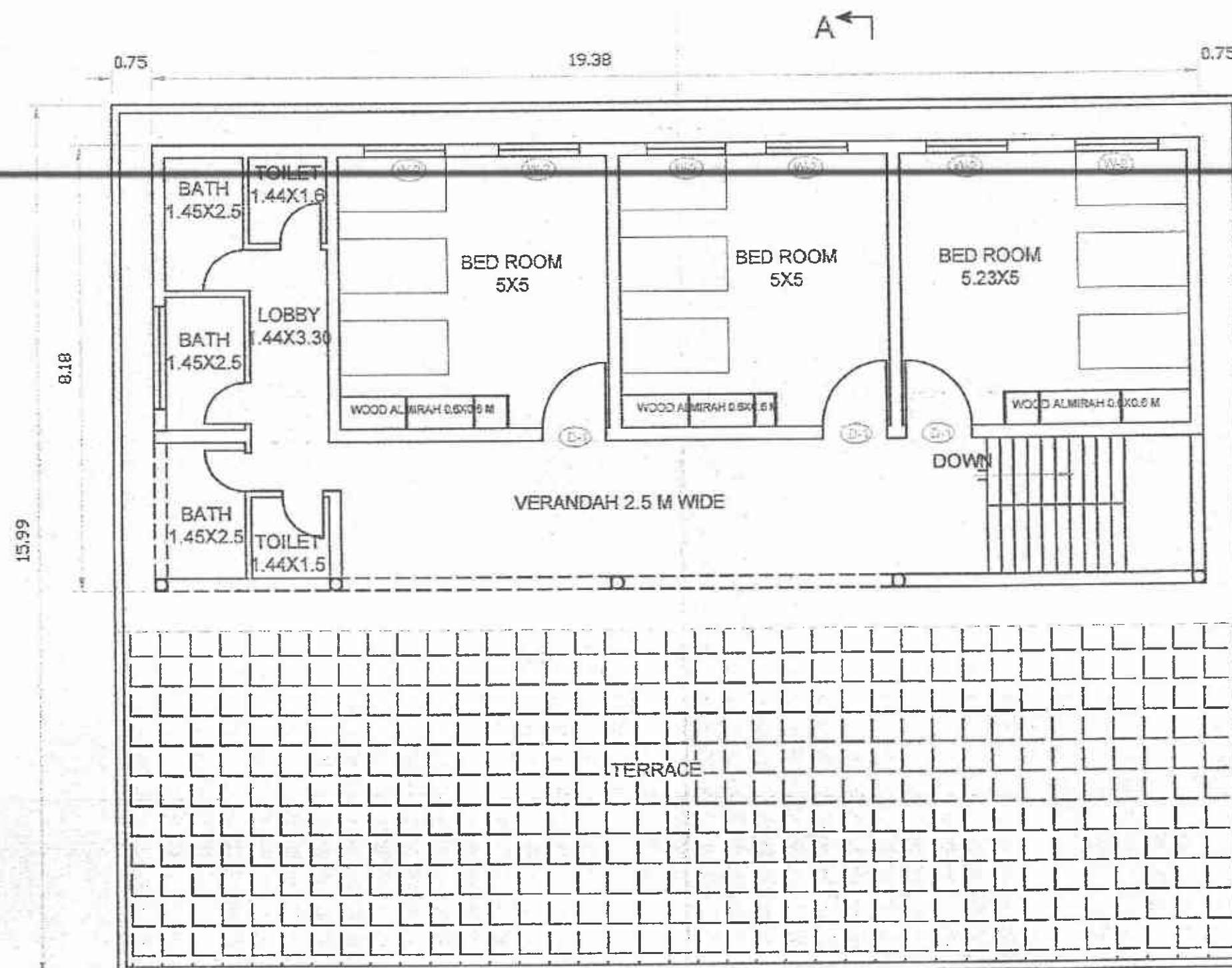
GOVERNMENT OF PAKISTAN
MINISTRY OF COMMUNICATIONS
NATIONAL HIGHWAY AUTHORITY

NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD.

04	JAWADUL HAQ	DRAWN BY	RAJA SHAFIQ
03	Project Manager	SUBMITTED BY	
02	M/S NESPAK	RECOMMENDED BY	
01		CHD./VER. BY	
REV.	DATE	DESCRIPTION	APPROVED

RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

TITLE	TOLL GATES OFFICE & RESIDENTIAL BUILDING G/F PLAN	SCALE
DATE	MARCH 2020	REV.
DRAWING NO.	3905/102/TD/ TP-05	



FIRST FLOOR OFFICE & RESIDENTIAL BUILDING PLAN

TENDER DRAWINGS



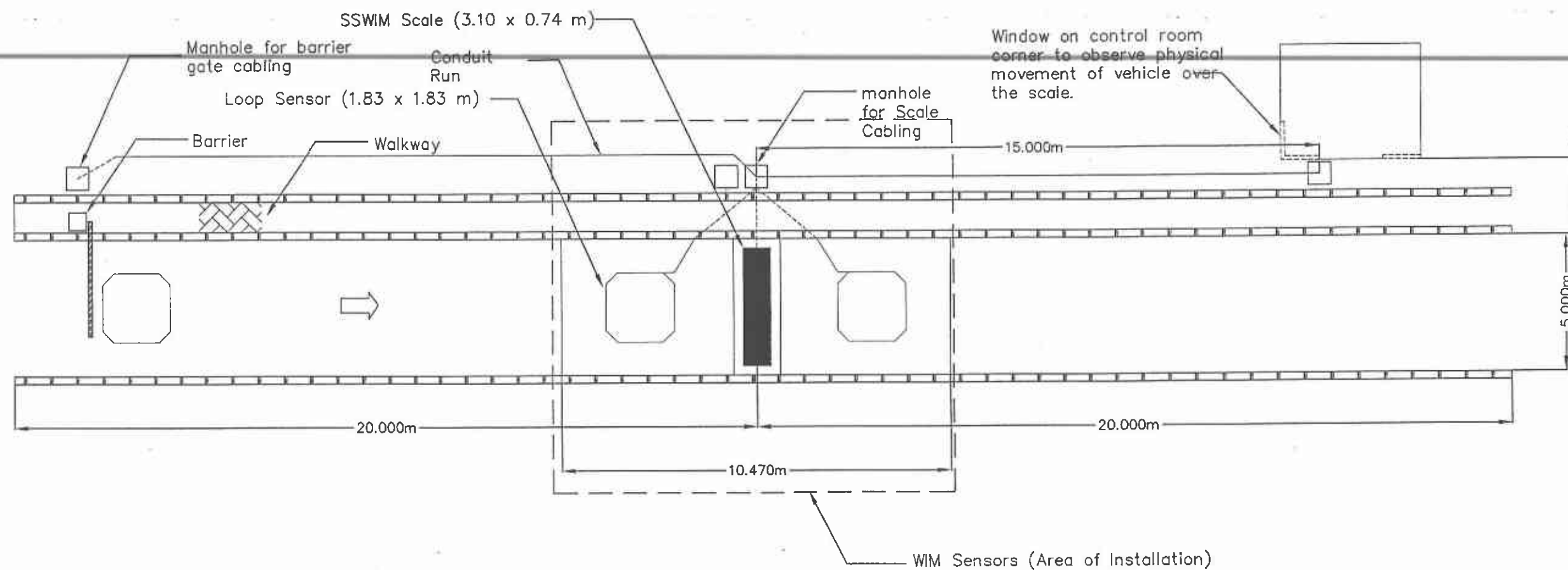
GOVERNMENT OF PAKISTAN
MINISTRY OF COMMUNICATIONS
NATIONAL HIGHWAY AUTHORITY

NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD.

04	WIAO AL HAQ	DRAWN BY	RAJA SHAFIQ
03	Project Manager	SUBMITTED BY	
02		RECOMMENDED BY	
01		CHD./VER. BY	
REV.	DATE	DESCRIPTION	APPROVED

RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)




TITLE	STANDARD TOLL PLAZA OFFICE & RESIDENTIAL BUILDING 1st/F PLAN	SCALE
DATE	MARCH 2020	REV.
DRAWING NO.	3905/102/TD/ TP-06	



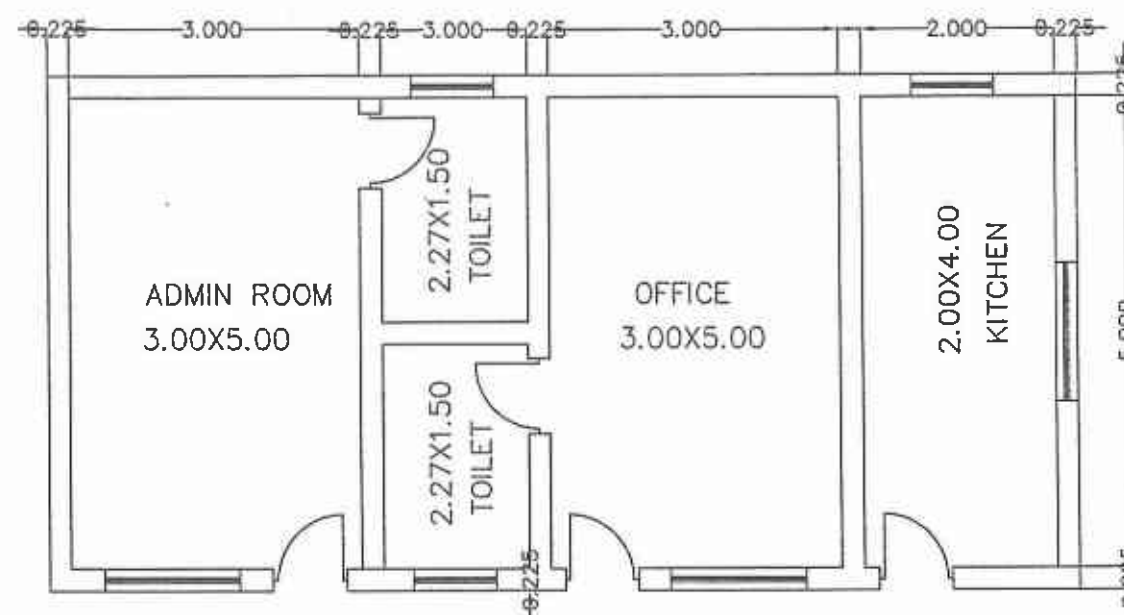
TENDER DRAWINGS



NOTE:
1- ALL THE DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED.

 <div>GOVERNMENT OF PAKISTAN MINISTRY OF COMMUNICATIONS NATIONAL HIGHWAY AUTHORITY</div>	 <div>NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD.</div>	04	 <div>JAWAD HAQ Project Manager M/S NESPAK</div>	DRAWN BY	RAJA SHAFIQ	RATODERO ~ RAJANPUR ROAD SECTION-V (ROJHAN TO RAJANPUR)	TITLE SSWIM SCALE (Typical Layout Plan)		SCALE
		03		SUBMITTED BY			DATE MARCH 2020	DRAWING NO. 3905/102/TD/ TP-07	REV.
		02		RECOMMENDED BY					
		01		CHD./VER. BY					
		REV.		DATE	DESCRIPTION				

WEIGH STATION BUILDING



TENDER DRAWINGS

ARCHITECTURAL PLAN

NOTE:
1- ALL THE DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED.



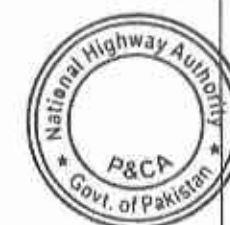
04		SAVATUL HAN	DRAWN BY	RAJA SHAFIQ
03		Project Manager	SUBMITTED BY	
02		M/S NESPAK	RECOMMENDED BY	
01			CHD./VER. BY	
REV.	DATE	DESCRIPTION	APPROVED	APPROVED BY

TITLE	WEIGH STATION BUILDING PLAN	SCALE
DATE	MARCH 2020	REV.
DRAWING NO.	3905/102/TD/ TP-08	

SCHEDULE OF STRUCTURES (ROJHAN TO RAJANPUR)

S.No.	Chainage	SpanxHeight	Skew	Remarks
1	213+610	3(2x1.5)	0°	Box Culvert
2	213+765	0.9DIA	0°	Pipe Culvert
3	214+025	0.9DIA	0°	Pipe Culvert
4	214+045	3(2x1.5)	0°	Box Culvert
5	214+425	3(2x1.5)	0°	Box Culvert
6	215+200	0.9DIA	0°	Pipe Culvert
7	215+455	0.9DIA	0°	Pipe Culvert
8	215+560	3(2x1.5)	0°	Box Culvert
9	216+270	1(1.4x1.5)	0°	Box Culvert
10	216+605	0.9DIA	0°	Pipe Culvert
11	216+885	2(2x1.5)	0°	Box Culvert
12	217+108	1(2x1.5)	0°	Box Culvert
13	217+530	1(2x1.5)	0°	Box Culvert
14	217+625	2(2x1.5)	0°	Box Culvert
15	218+150	1(2x1.5)	0°	Box Culvert
16	218+590	1(2x1.5)	0°	Box Culvert
17	219+012	1(2x1.5)	0°	Box Culvert
18	219+045	1(3x1.5)	0°	Box Culvert
19	219+110	1(2x1.5)	0°	Box Culvert
20	220+955	0.6DIA	0°	Pipe Culvert
21	221+555	1(2x1.5)	0°	Box Culvert
22	221+765	1(2x1.5)	0°	Box Culvert
23	222+110	0.6DIA	0°	Pipe Culvert
24	222+485	1(2x1.5)	0°	Box Culvert
25	222+825	0.6DIA	0°	Pipe Culvert
26	223+105	2(2x1.5)	0°	Box Culvert
27	223+345	0.9DIA	0°	Pipe Culvert
28	223+645	0.9DIA	0°	Pipe Culvert
29	224+005	1(2x1.5)	6°	Box Culvert
30	224+120	0.6DIA	0°	Pipe Culvert

TENDER DRAWINGS



GOVERNMENT OF PAKISTAN
MINISTRY OF COMMUNICATIONS
NATIONAL HIGHWAY AUTHORITY

NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD.

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02				RECOMMENDED BY	
01				CHD./VER. BY	
REV.	DATE	DESCRIPTION	APPROVED	APPROVED BY	

RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

TITLE	SCHEDULE OF STRUCTURES	SCALE	
DATE	MARCH 2020	DRAWING NO.	3905/102/TD/SCH-01
REV.			

SCHEDULE OF STRUCTURES (ROJHAN TO RAJANPUR)

S.No.	Chainage	SpanxHeight	Skew	Remarks
31	224+515	3(3x1.5)	0°	Box Culvert
32	224+830	0.6DIA	0°	Pipe Culvert
33	224+830	0.6DIA	0°	Pipe Culvert
34	224+845	0.6DIA	0°	Pipe Culvert
35	224+865	0.6DIA	0°	Pipe Culvert
36	225+055	0.6DIA	0°	Pipe Culvert
37	225+130	1(2x1.5)	0°	Box Culvert
38	225+240	0.6DIA	0°	Pipe Culvert
39	225+475	1(2x1.5)	0°	Box Culvert
40	225+905	1(2x1.5)	0°	Box Culvert
41	226+105	1(2x1.5)	0°	Box Culvert
42	226+185	1(2x1.5)	0°	Box Culvert
43	226+675	0.9DIA	0°	Pipe Culvert
44	226+705	1(2x1.5)	0°	Box Culvert
45	226+830	0.9DIA	0°	Pipe Culvert
46	227+285	0.6DIA	0°	Pipe Culvert
47	227+655	0.9DIA	0°	Pipe Culvert
48	227+945	1(2x1.5)	0°	Box Culvert
49	228+418	1(2x1.5)	0°	Box Culvert
50	228+610	1(2x1.5)	0°	Box Culvert
51	228+818	1(2x1.5)	0°	Box Culvert
52	228+945	2(3x1.5)	0°	Box Culvert
53	228+955	1(2x1.5)	0°	Box Culvert
54	229+010	3(2x1.5)	0°	Box Culvert
55	229+060	6(2x1.5)	0°	Box Culvert
56	229+160	3(2x1.5)	0°	Box Culvert
57	229+300	1(2x1.5)	0°	Box Culvert
58	229+560	3(2x1.5)	0°	Box Culvert
59	229+610	3(3x1.5)	0°	Box Culvert
60	229+700	2(3x1.5)	0°	Box Culvert

TENDER DRAWINGS



GOVERNMENT OF PAKISTAN
MINISTRY OF COMMUNICATIONS
NATIONAL HIGHWAY AUTHORITY



NATIONAL ENGINEERING SERVICES
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03				SUBMITTED BY	
02				RECOMMENDED BY	
01				CHD./VER. BY	
REV.	DATE	DESCRIPTION	APPROVED	APPROVED BY	

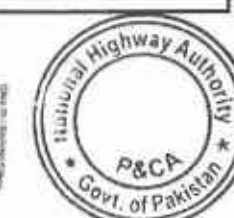
RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

TITLE	SCHEDULE OF STRUCTURES	SCALE
DATE	MARCH 2020	REV.
DRAWING NO.	3905/102/TD/SCH-02	

SCHEDULE OF STRUCTURES (ROJHAN TO RAJANPUR)

S.No.	Chainage	SpanxHeight	Skew	Remarks
61	229+820	1(3x1.5)	0°	Box Culvert
62	229+930	2(2x1.5)	0°	Box Culvert
63	230+005	2(2x1.5)	0°	Box Culvert
64	230+060	1(2x1.5)	0°	Box Culvert
65	230+310	1(2x1.5)	0°	Box Culvert
66	230+735	1(2x1.5)	0°	Box Culvert
67	230+975	1(2x1.5)	0°	Box Culvert
68	230+985	1(2x1.5)	0°	Box Culvert
69	231+170	2(2x1.5)	0°	Box Culvert
70	231+620	1(2x1.5)	0°	Box Culvert
71	231+760	2(2x1.5)	0°	Box Culvert
72	232+000	1(3x1.5)	0°	Box Culvert
73	232+250	1(3x1.5)	0°	Box Culvert
74	232+560	2(2x1.5)	0°	Box Culvert
75	232+760	2(2x1.5)	0°	Box Culvert
76	232+990	1(2x1.5)	0°	Box Culvert
77	233+080	1(2x1.5)	0°	Box Culvert
78	233+125	1(2x1.5)	0°	Box Culvert
79	233+385	1(2x1.5)	0°	Box Culvert
80	233+745	1(2x1.5)	0°	Box Culvert
81	234+000	1(2x1.5)	0°	Box Culvert
82	234+030	1(2x1.5)	0°	Box Culvert
83	234+120	5(2x1.5)	0°	Box Culvert
84	234+320	3(3x1.5)	0°	Box Culvert
85	234+452	0.9DIA	0°	Pipe Culvert
86	234+508	3(3x1.5)	0°	Box Culvert
87	234+555	5(2x1.5)	0°	Box Culvert
88	234+600	4(2x1.5)	0°	Box Culvert
89	234+750	3(3x1.5)	0°	Box Culvert
90	234+940	3(3x1.5)	0°	Box Culvert

TENDER DRAWINGS



GOVERNMENT OF PAKISTAN
MINISTRY OF COMMUNICATIONS
NATIONAL HIGHWAY AUTHORITY

NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD.

04		DRAWN BY	RAJA SHAFIQ
03		SUBMITTED BY	
02		RECOMMENDED BY	
01		CHD./VER. BY	
REV.	DATE	DESCRIPTION	APPROVED

RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

TITLE
SCHEDULE OF STRUCTURES

DATE
MARCH 2020

DRAWING NO.
3905/102/TD/SCH-03

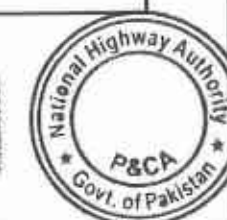
SCALE

REV.

SCHEDULE OF STRUCTURES (ROJHAN TO RAJANPUR)

S.No.	Chainage	SpanxHeight	Skew	Remarks
91	235+055	3(3x1.5)	0°	Box Culvert
92	235+205	3(3.3x1.5)	0°	Box Culvert
93	235+400	5(2x1.5)	0°	Box Culvert
94	235+530	2(5x1.5)	0°	Box Culvert
95	235+675	1(2.5x1.5)	0°	Box Culvert
96	235+705	5(2x1.5)	0°	Box Culvert
97	235+780	5(2x1.5)	0°	Box Culvert
98	235+870	1(2.5x1.5)	0°	Box Culvert
99	235+900	2(3x1.5)	0°	Box Culvert
100	236+030	3(3x1.5)	0°	Box Culvert
101	236+140	3(3x1.5)	0°	Box Culvert
102	236+200	3(3.8x1.5)	0°	Box Culvert
103	236+240	4(2x1.5)	0°	Box Culvert
104	236+275	0.9DIA	0°	Pipe Culvert
105	236+310	3(3x1.5)	0°	Box Culvert
106	236+475	3(3x1.5)	0°	Box Culvert
107	236+545	3(3x1.5)	0°	Box Culvert
108	236+720	3(3x1.5)	0°	Box Culvert
109	236+768	0.9DIA	0°	Pipe Culvert
110	236+870	3(3x1.5)	0°	Box Culvert
111	236+890	3(3x1.5)	0°	Box Culvert
112	236+955	3(3x1.5)	0°	Box Culvert
113	237+080	3(3x1.5)	0°	Box Culvert
114	237+240	3(3x1.5)	0°	Box Culvert
115	237+340	3(3x1.5)	0°	Box Culvert
116	237+460	3(3x1.5)	0°	Box Culvert
117	237+555	3(3x1.5)	0°	Box Culvert
118	237+705	5(2x1.5)	0°	Box Culvert
119	237+755	1(1.5x1.5)	0°	Box Culvert
120	237+800	3(3x1.5)	0°	Box Culvert

TENDER DRAWINGS



GOVERNMENT OF PAKISTAN
MINISTRY OF COMMUNICATIONS
NATIONAL HIGHWAY AUTHORITY

NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD.

04			DRAWN BY	RAJA SHAFIQ
03			SUBMITTED BY	
02			RECOMMENDED BY	
01			CHD./VER. BY	
REV.	DATE	DESCRIPTION	APPROVED	APPROVED BY

RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

TITLE	SCHEDULE OF STRUCTURES	SCALE
DATE	MARCH 2020	REV.
DRAWING NO.	3905/102/TD/ SCH-04	

SCHEDULE OF STRUCTURES (ROJHAN TO RAJANPUR)

S.No.	Chainage	SpanxHeight	Skew	Remarks
121	237+905	3(2x1.5)	0°	Box Culvert
122	238+005	3(3x1.5)	0°	Box Culvert
123	238+160	3(3x1.5)	0°	Box Culvert
124	238+265	3(3x1.5)	0°	Box Culvert
125	238+405	3(3x1.5)	0°	Box Culvert
126	238+465	3(3x1.5)	0°	Box Culvert
127	238+595	5(2x1.5)	0°	Box Culvert
128	238+705	7(2x1.5)	0°	Box Culvert
129	238+855	3(3x1.5)	0°	Box Culvert
130	239+030	1(2x1.5)	0°	Box Culvert
131	239+160	7(2x1.5)	0°	Box Culvert
132	239+230	0.9DIA	0°	Pipe Culvert
133	239+460	7(2x1.5)	0°	Box Culvert
134	239+670	5(2x1.5)	0°	Box Culvert
135	239+710	4(2x1.5)	0°	Box Culvert
136	239+870	0.9DIA	0°	Pipe Culvert
137	240+110	5(2x1.5)	0°	Box Culvert
138	240+760	7(2x1.5)	0°	Box Culvert
139	240+945	1(1.5x1.5)	0°	Box Culvert
140	241+255	3(2x1.5)	0°	Box Culvert
141	241+630	3(2x1.5)	0°	Box Culvert
142	241+690	0.9DIA	0°	Pipe Culvert
143	242+075	3(2x1.5)	0°	Box Culvert
144	242+255	3(2x1.5)	0°	Box Culvert
145	242+400	3(2x1.5)	0°	Box Culvert
146	242+490	0.9DIA	0°	Pipe Culvert
147	242+710	2(3.5x1.5)	0°	Box Culvert
148	243+160	3(2x1.5)	0°	Box Culvert
149	243+405	3(2x1.5)	0°	Box Culvert
150	243+635	3(2x1.5)	0°	Box Culvert

TENDER DRAWINGS



GOVERNMENT OF PAKISTAN
MINISTRY OF COMMUNICATIONS
NATIONAL HIGHWAY AUTHORITY

NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD.

04			DRAWN BY	RAJA SHAFIQ
03			SUBMITTED BY	
02			RECOMMENDED BY	
01			CHD./VER. BY	
REV.	DATE	DESCRIPTION	APPROVED	APPROVED BY

RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

TITLE
SCHEDULE OF STRUCTURES

DATE
MARCH 2020

DRAWING NO.
3905/102/TD/SCH-05

REV.

SCHEDULE OF STRUCTURES (ROJHAN TO RAJANPUR)

S.No.	Chainage	SpanxHeight	Skew	Remarks
151	243+690	0.9DIA	0°	Pipe Culvert
152	243+808	3(2x1.5)	0°	Box Culvert
153	243+980	0.9DIA	0°	Pipe Culvert
154	244+215	1(1.5x1.5)	0°	Box Culvert
155	244+510	1(1.5x1.5)	6°	Box Culvert
156	244+805	1(1.5x1.5)	0°	Box Culvert
157	244+870	1(1.5x1.5)	0°	Box Culvert
158	245+045	0.9DIA	0°	Pipe Culvert
159	245+110	1(1.5x1.5)	0°	Box Culvert
160	245+390	1(1.6x1.5)	0°	Box Culvert
161	245+555	1(2x1.5)	0°	Box Culvert
162	245+660	1(1.6x1.5)	0°	Box Culvert
163	245+875	1(1.6x1.5)	0°	Box Culvert
164	245+935	1(1.6x1.5)	0°	Box Culvert
165	246+560	1(1.6x1.5)	0°	Box Culvert
166	247+055	1(1.6x1.5)	0°	Box Culvert
167	247+175	1(1.6x1.5)	0°	Box Culvert
168	247+530	1(3x1.5)	0°	Box Culvert
169	247+750	1(2x1.5)	0°	Box Culvert
170	248+130	1(1.6x1.5)	0°	Box Culvert
171	249+435	1(2x1.5)	0°	Box Culvert
172	250+005	1(1x30)	15°	Bridge
173	250+035	1(3x1.5)	8°	Box Culvert
174	250+210	1(1.6x1.5)	0°	Box Culvert
175	250+460	1(2x1.5)	5°	Box Culvert
176	250+540	1(2x1.5)	0°	Box Culvert
177	250+940	1(2x1.5)	8°	Box Culvert
178	251+055	1(1.6x1.5)	9°	Box Culvert
179	251+630	1(1.6x1.5)	0°	Box Culvert
180	251+775	1(2x1.5)	0°	Box Culvert

TENDER DRAWINGS



GOVERNMENT OF PAKISTAN
MINISTRY OF COMMUNICATIONS
NATIONAL HIGHWAY AUTHORITY

NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD.

04		JAWAHIR HAD	DRAWN BY	RAJA SHAFIQ
03		Project Manager	SUBMITTED BY	
02		M/S NESPAK	RECOMMENDED BY	
01			CHK./VER. BY	
REV.	DATE	DESCRIPTION	APPROVED	APPROVED BY

RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

TITLE	SCHEDULE OF STRUCTURES	SCALE	
DATE	MARCH 2020	DRAWING NO.	3905/102/TD/SCH-06
REV.			

SCHEDULE OF STRUCTURES (ROJHAN TO RAJANPUR)

S.No.	Chainage	SpanxHeight	Skew	Remarks
181	251+890	1(2x1.5)	0°	Box Culvert
182	252+430	1(1.6x1.5)	0°	Box Culvert
183	253+485	0.9DIA	0°	Pipe Culvert
184	254+215	1(2.5x1.5)	0°	Box Culvert
185	254+465	1(2.5x1.5)	0°	Box Culvert
186	254+800	1(3x1.5)	0°	Box Culvert
187	255+840	1(2.5x1.5)	0°	Box Culvert
188	256+615	1(2x1.5)	0°	Box Culvert
189	258+550	2(2x1.5)	0°	Box Culvert
190	258+930	2(1.5x1.5)	0°	Box Culvert
191	261+155	1(1.5x1.5)	0°	Box Culvert
192	261+370	0.9DIA	0°	Pipe Culvert
193	262+260	0.9DIA	0°	Pipe Culvert
194	262+790	0.9DIA	30°	Pipe Culvert
195	262+805	0.9DIA	28°	Pipe Culvert
196	262+985	3(2x1.5)	48°	Box Culvert
197	263+350	0.9DIA	6°	Pipe Culvert
198	263+930	0.9DIA	0°	Pipe Culvert
199	264+225	0.9DIA	0°	Pipe Culvert
200	264+365	0.9DIA	0°	Pipe Culvert
201	264+475	0.9DIA	0°	Pipe Culvert
202	264+520	0.9DIA	0°	Pipe Culvert
203	265+135	1(10x5.1)	8°	Underpass

NOTE

ADDITIONAL STRUCTURE (IF REQUIRED) SHALL BE PROVIDED AS PER SITE REQUIREMENT OR AS PER THE DIRECTION OF THE ENGINEER.



TENDER DRAWINGS

LIST OF DRAWINGS

RATODERO TO RAJANPUR ROAD

(SECTION-III)

Sr.No.	DESCRIPTION	DWG. Nos.
01	LIST OF DRAWINGS	3905/102/TD/P30000
02	GENERAL NOTES	3905/102/TD/P30001
03	LIST OF BRIDGES & UNDERPASS	3905/102/TD/P3
	BRIDGES	
04	GENERAL ARRANGEMENT PLAN & ELEVATION BRIDGE AT 250+005	3905/102/TD/P30105
05	25M PRESTRESSED GIRDER CONCRETE OUTLINE & PRESTRESSING DETAILS	3905/102/TD/P30110
06	25M PRESTRESSED GIRDER REINFORCEMENT DETAILS	3905/102/TD/P30111
07	ABUTMENT AB1,AB2 & PIER REINFORCEMENT DETAILS	3905/102/TD/P30114
08		
09	UNDERPASSES & CULVERTS	
10		
11	GENERAL ARRANGEMENT CONCRETE OUTLINE ROAD UNDERPASS (6000x4000)	3905/102/TD/P3
12	GENERAL ARRANGEMENT CONCRETE OUTLINE ROAD UNDERPASS (10000x5100)	3905/102/TD/P30P117
13	GENERAL ARRANGEMENT CONCRETE OUTLINE ROAD UNDERPASS (10000x5100)	3905/102/TD/P30P118
14	BOX CULVERT GENERAL ARRANGEMENT	3905/102/TD/P3 19A, 19B & 19C
15	PIPE CULVERT-TRENCHING AND INLET/OUTLET DETAILS	3905/102/TD/P30P120
16	LIST OF PIPE CULVERTS	3905/102/TD/P3

TENDER DRAWINGS



GOVERNMENT OF PAKISTAN MINISTRY OF COMMUNICATIONS NATIONAL HIGHWAY AUTHORITY	NEE PAK	NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD		PROJECT MANAGER M/S NESPAC		DRAWN 17/03/2020		SECTION-V RATODERO ~ RAJANPUR ROAD (ROJHAN TO RAJANPUR)		LIST OF DRAWINGS		SCALE
		HEAD OFFICE NESPAC HOUSE, 1-C, BLOCK H, MODEL TOWN EXTENSION, LAHORE, PAKISTAN		DATE MARCH 2020		DWG NO 3905/102/TD/P30000		REV				

GENERAL:

- 1.1 THESE NOTES ARE SPECIFIC TO RATODERO-RAJANPUR ROAD (SECTION-W) KASHMIRE TO RAJANPUR (Km.105+600 - Km.265+300). PROJECT ONLY AND SHOULD BE READ IN THE PROJECT SPECIFICATIONS, STRUCTURAL ENGINEERING DRAWINGS, RELEVANT CONTRACT CONDITIONS AND ENGINEER'S INSTRUCTIONS.
- 1.2 ALL DRAWINGS SHALL BE CO-ORDINATED WITH OTHER SPECIALTY DRAWINGS / DETAILS. ANY DISCREPANCY, ERROR OR RECTIFICATION IF REQUIRED, SHALL BE BROUGHT TO THE NOTICE OF THE ENGINEER FOR NECESSARY APPROVAL.
- 1.3 ALL DIMENSIONS ARE IN MILLIMETRES AND ELEVATIONS IN METRES, UNLESS SPECIFIED OTHERWISE.
- 1.4 ALL ELEVATIONS SHOWN ON DRAWINGS ARE FINISHED SURFACE LEVELS UNLESS NOTED OTHERWISE.
- 1.5 ALL EXPOSED CONCRETE CORNERS, EDGES AND ANGLES SHALL BE CHAMFERED OR FILLETED 20mm x 20 mm UNLESS SPECIFIED OTHERWISE.
- 1.6 THE CONTRACTOR SHALL SUBMIT, COMPLETE METHODOLOGY FOR DIFFERENT WORK ITEMS LIKE EXCAVATION/BACKFILLING, DRAINAGE/CONCRETE, CONCRETE, LIFTING/LAUNCHING OF GIRDERS, JOINTS AND POST TENSIONING ETC FOR APPROVAL OF ENGINEER.
- 1.7 SULPHATE RESISTING CEMENT SHALL BE USED WHERE REQUIRED AND AS PER ENGINEER'S INSTRUCTIONS.
- 1.8 ALL FACES OF CONCRETE IN ABUTMENTS AND WING WALLS IN CONTACT WITH SOIL SHALL BE DAMP PROOFED WITH TWO COATS OF BITUMINOUS MATERIAL AT NO EXTRA COST.
- 1.9 ALL EXPOSED SURFACES SHALL HAVE CLASS 1 SURFACE FORM FINISH UNLESS SPECIFIED OTHERWISE.

2. DESIGN SPECIFICATIONS:

- 2.1 AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES - 2002.
- 2.2 WEST PAKISTAN CODE OF PRACTICE FOR HIGHWAY BRIDGES -1967 (WHERE APPLICABLE)

3. LIVE LOADS:

- 3.1 SINGLE LANE OF CLASS 'AA' (MILITARY LOADING TANK 70 TON) OR THREE / FOUR LANES OF CLASS 'A' LOADING OF WEST PAKISTAN CODE OF PRACTICE FOR HIGHWAY BRIDGES- 1967 WHICHEVER GOVERNS.
- 3.2 A SINGLE LOAD OF 95 kN (21 kip) ON 300mmx600 mm AREA, FOR THE DESIGN OF DECK SLAB ONLY.

4. MATERIALS:

- 4.1 ALL THE MATERIALS AND WORKMANSHIP SHALL BE ACCORDING TO THE AASHTO SPECIFICATIONS AND ASTM STANDARDS EXCEPT WHERE MODIFIED BELOW, OR IN "PARTICULAR SPECIFICATIONS AND SPECIAL PROVISIONS" OF TENDER DOCUMENTS.

- 4.2 CONCRETE
CONCRETE CLASSIFICATION AND STRENGTHS SHALL BE AS PER TABLE GIVEN BELOW:

CONCRETE	CLASS	28 DAYS (15cm x 30 cm) CYLINDER STRENGTH Kg/Sq.Cm
REINFORCED - - - - - (CONCRETE BARRIER, APPROACH SLAB)	A1	210 (2,000 psi)
REINFORCED - - - - - (DECK SLAB, DIAPHRAGM, WING WALL, CURTAIN WALL, SHEAR KEYS, CONCRETE PAD, REINFORCED CONCRETE BEAM, TRANSOM, ABUTMENT SEAT, WALLS, FOUNDATION, WATER COURSE CULVERTS, DRAINAGE CULVERTS, AND RETAINING WALLS ETC.)	A2	280 (4,000 psi)
REINFORCED - - - - - (PILES & PIERS)	A3	280 (4,000 psi)
LEAN - - - - -		105 (1,500 psi)
PRESTRESSED - - - - -	D1	350 (5,000 psi)

4.3 REINFORCEMENT

REINFORCING STEEL SHALL BE DEFORMED ROUND BARS OF INTERMEDIATE GRADE (GRADE 60) CONFORMING TO AASHTO M-31 (ASTM A-615) WITH MINIMUM YIELD STRENGTH OF 4,200 Kg/Sq.Cm (60,000 Psi).

4.4 STRUCTURAL STEEL

MAIN STRUCTURAL STEEL SHALL CONFORM TO ASTM A-36 HAVING MINIMUM YIELD STRENGTH OF 2,500 Kg/Sq.Cm (36,000 psi). BOLTS AND NUTS SHALL CONFORM TO ASTM A-307 OR EQUIVALENT WELDS SHALL CONFORM TO A.W.S (AMERICAN WELDING STANDARDS).

4.5 PRESTRESSING STEEL

PRESTRESSING STEEL SHALL BE NORMAL RELAXATION STRAND CONFORMING TO AASHTO M203 (ASTM A-416), GRADE 270 HAVING MINIMUM ULTIMATE TENSILE STRENGTH OF 18,000 Kg/Sq.Cm (270 ksi).

4.6 BEARING PADS

BEARING PADS SHALL BE ELASTOMERIC AND LAMINATED CONFORMING TO AASHTO SPECIFICATIONS FOR HIGHWAY BRIDGES.

4.7 DUCTS FOR PRESTRESSING

- FOR CABLE 12.7mm, ID SHALL BE > or = 51 mm
- FULLY GALVANIZED FERROUS METAL SHEATH THICKNESS > or = 0.3mm SHALL BE USED

4.8 STEEL TUBES

ALL STEEL TUBES SHALL CONFORM TO ASTM A-501 HAVING MINIMUM YIELD STRENGTH OF 2,500 Kg/Sq.Cm (36,000 psi)

CONCRETE COVER:

THE MINIMUM COVER TO REINFORCEMENT SHALL BE AS UNDER UNLESS SPECIFIED OTHERWISE.

DECK SLAB	
TOP	40 mm
BOTTOM	25 mm
PRESTRESSED GIRDER	
TOP	25 mm
STIRRUPS	25 mm

BARRIER	
TOP BOTTOM & SIDES	30 mm
PILES	75 mm
PIER	40 mm
BEAM	40 mm
APPROACH SLAB	
BOTTOM	50 mm
TOP	75 mm
FOUNDATION	
TOP	50 mm
BOTTOM & SIDES	75 mm
WALLS	
EARTH SIDE	50 mm
OTHER SIDE	40 mm

MATERIAL FOR CONCRETE COVER

BAR SUPPORTS SHALL BE PRECAST MORTAR BLOCK, PLASTIC OR METAL SUPPORT. MORTAR BLOCKS SHALL BE CONSTRUCTED AND CURED TO THE MINIMUM COMPRESSIVE STRENGTH OF MORTAR USED FOR BLOCKS SHALL EQUAL THE MINIMUM COMPRESSIVE STRENGTH OF CONCRETE FOR THE STRUCTURE. THEY ARE USED IN MORTAR BLOCK SUPPORTS SHALL BE ATTACHED TO THE SUPPORTED BAR BY MEANS OF 18-GAUGE WIRE CAST IN THE CENTER OF EACH BLOCK.

6. PRESTRESSED GIRDERS:

- 6.1 GIRDER TOP SHALL BE ROUGHENED TO A FULL AMPLITUDE OF 6 mm.
- 6.2 GIRDERS SHALL BE INSTALLED IN THEIR CORRECT POSITION ON BEARINGS BY LAUNCHING AND SHALL BE TEMPORARILY BRACED UNTIL CASTING OF DIAPHRAGMS.
- 6.3 IF LIFTING METHOD IS USED, GIRDERS SHALL BE LIFTED FROM BOTH ENDS USING LIFTING HOLES / SLEEVES BY MEANS APPROVED BY THE ENGINEER.
- 6.4 IF LAUNCHING IS USED THE MAXIMUM CANTILEVER OVERHANG SHALL NOT EXCEED 3 m.

7. POST-TENSIONING:

- 7.1 A MULTI-STRAND POST TENSIONING SYSTEM SHALL BE USED.
- 7.2 ALL CABLES SHALL BE STRESSED, SIMULTANEOUSLY FROM BOTH ENDS, IN THE ORDER SPECIFIED ON THE DRAWINGS.
- 7.3 CABLE EXTENSION INCLUDES A PULL-IN MARGIN OF 6 mm AT EACH STRESSING END.
- 7.4 THE JACKING FORCE, CABLE ELONGATION AND LOOSING SLIPPAGE SHALL BE IN ACCORDANCE WITH THE DRAWINGS. ANY DEVIATION OR VARIATION MUST BE REPORTED TO THE ENGINEER BEFORE CONTINUING STRESSING WORK.
- 7.5 THE CABLE AXIS MUST COINCIDE WITH THE ANCHORAGE AXIS BEHIND THE ANCHORAGE FOR A LENGTH OF AT LEAST 100mm OR TRUMPET LENGTH, WHICHEVER IS GREATER.
- 7.6 SUITABLE STEEL CHAIRS / FRAMES TO HOLD THE PRESTRESSING CABLE DUCTS AND REINFORCEMENT IN TRUE POSITION AT ADEQUATE INTERVALS (RANGING FROM 0.8 TO 1.2 METER) SHALL BE PROVIDED.
- 7.7 PROVISIONS SHALL BE MADE IN THE END ANCHORAGES FOR GROUTING THE CABLE DUCTS IMMEDIATELY AFTER TENSIONING. AFTER SECURING THE END ANCHORAGES, ALL CABLES SHALL BE PRESSURE GROUTED IN THEIR DUCTS IN ACCORDANCE WITH THE SPECIFICATIONS.
- 7.8 INTERMEDIATE GROUT VENTS SHALL BE PROVIDED NEAR THE LOWEST PART OF THE CABLE PROFILE AT ABOUT MID-LENGTH OF THE CABLES. CABLES SHALL BE GROUTED AFTER STRESSING WITH FLOW-CABLE / FLOW-CABLE-50 OR EQUIVALENT AS APPROVED BY THE ENGINEER. ANCHORAGE POCKETS SHALL BE FILLED WITH 210 KG/SQ. CM (3000 Psi) CONCRETE USING 10 MM DOWN AGGREGATE, AFTER GROUTING AND TRIMMING CABLES.
- 7.9 THE FOLLOWING SHALL BE ASSUMED IN THE CALCULATION OF THEORETICAL ELONGATION, A_e :
 - MODULUS OF ELASTICITY, E = 1,966,700 Kg/Sq.Cm (28,000 ksi)
 - COEFFICIENT OF FRICTION = 0.25 / radian
 - WOBLE COEFFICIENT = 0.0033 / meter.
 - DRAW-IN OF WEDGES FOR 0.5" (12.7mm) STRAND = 6 mm.

- 7.10 UNLESS NOTED OTHERWISE THE CYLINDER STRENGTH OF CONCRETE IN POST TENSIONED GIRDER AT TRANSFER SHALL BE NOT LESS THAN 350 Kg/Sq.Cm (5,000 psi).

- 7.11 COMPLETE PRESTRESSING TENDONS OR CABLES SHALL CONSIST OF HIGH TENSILE CABLES AS SPECIFIED IN DRAWINGS, ALONGWITH CORE HELIX, METAL SHEATHS, COUPLINGS AT ADEQUATE INTERVALS, PRESTRESSING ANCHORAGES, BINDING TAPE, METAL SPACERS AND OTHER ACCESSORIES.

8. FOUNDATIONS:

- 8.1 ALL THE EXCAVATION FOR OPEN FOUNDATIONS / BOX CULVERTS SHALL BE SUBJECT TO INSPECTION BY THE ENGINEER PRIOR TO POURING OF CONCRETE.
- 8.2 THE LENGTH OF PILES ARE TENTATIVE. PILE DESIGN SHALL BE EXECUTED ON THE BASIS OF SOIL EXPLORATORY BORING BY THE CONTRACTOR AND SHALL BE FINALIZED AFTER RESULTS OF THE PILE LOAD TEST.
- 8.3 ALL ABUTMENT PILES SHALL BE CAST AFTER CONSTRUCTION OF ROAD EMBANKMENT.

8.4 PILE LOAD TEST:

ONE/TWO PILES SHOULD BE CAST, AS SHOWN ON DRAWINGS AND AT LOCATION DIRECTED BY THE ENGINEER. FOR PILE LOAD TEST PILE SHALL BE TESTED UP TO 2.5 TIMES OF THE DESIGN LOAD. PILE LOAD TESTS SHALL BE CARRIED OUT AS PER ASTM DESIGNATION D-1143-87 AND TEST RESULTS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. CONSTRUCTION OF WORKING PILES SHALL COMMENCE AFTER COMPLETION AND INTERPRETATION OF TEST RESULTS.

8.5 PROOF LOAD TEST:

THE WORKING PILES SHALL BE CONSTRUCTED AS PER THE FINAL DESIGN. AT LEAST ONE OF THE WORKING PILES SHALL BE SUBJECT TO PROOF LOAD TEST WITH LOAD ONE AND A HALF TIMES THE DESIGN LOAD.

- 8.6 PLANNING FOR LOAD TESTS, SUPERVISION, INTERPRETATION OF RESULTS AND LOAD CARRYING CAPACITY ANALYSIS SHALL BE CARRIED OUT BY THE ENGINEER.

- 8.7 BEHIND THE CLOSED ABUTMENT AND WING WALLS, A SELECTED GRANULAR BACKFILL SHALL BE PROVIDED WITH NO EXTRA COST.

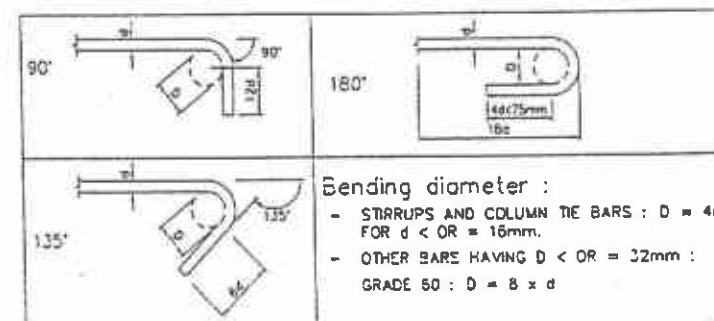
- 8.8 BEARING CAPACITY REQUIRED FOR RETAINING WALLS RANGES FROM 2 TO 1 TON/SFT WITH RESPECT TO THE HEIGHT OF WALL. THIS REQUIREMENT MUST BE MET AT SITE AS PER THE INSTRUCTIONS OF GEOTECH ENGINEER.

9. JOINTS:

- 9.1 THE CONTRACTOR SHALL SUBMIT COMPLETE LAYOUT AND DETAILS OF ALL CONSTRUCTION JOINTS FOR APPROVAL OF THE ENGINEER.
- 9.2 CONCRETE IN DECK SLAB SHALL BE PLACED IN FULL WIDTH. NO CONSTRUCTION JOINT SHALL BE PERMITTED. DIAPHRAGMS AND DECK SLAB SHALL BE CAST MONOLITHICALLY EXCEPT AS SHOWN ON DRAWING AT LOCATION FOR INSTALLATION OF EXPANSION JOINTS.
- 9.3 CONCRETE FOR THE BARRIERS AND SIDEWALKS SHALL BE PLACED NO SOONER THAN 20 DAYS AFTER PLACING OF CONCRETE IN THE DECK SLAB.
- 9.4 UNLESS SPECIFIED OTHERWISE ON DRG. ALLOWABLE MOVEMENT BETWEEN MAXIMUM AND MINIMUM GAP ARE 25mm IN THE DIRECTION OF TRAFFIC. EXPANSION JOINT SYSTEM SHALL BE INSTALLED AT LEAST ONE MONTH AFTER COMPLETING THE DECK OR ACHIEVING REQUIRED COMPRESSIVE STRENGTH OF DECK SLAB WHICHEVER IS EARLIER IN BLOCK OUT PROVIDED AT TIME OF POURING DECK SLAB. CONTRACTOR SHALL SUBMIT NECESSARY INSTALLATION DETAILS FOR ENGINEER'S APPROVAL BEFORE STARTING THIS ACTIVITY.

10. BAR BENDING SCHEDULE

DETAILED BAR BENDING SCHEDULE SHALL BE PREPARED BY THE CONTRACTOR AND SUBMITTED FOR ENGINEER'S APPROVAL. LAP LENGTHS AND STANDARD HOOKS SHALL BE AS GIVEN BELOW:



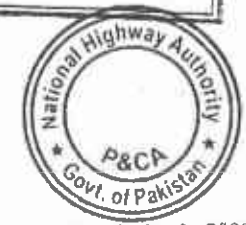
11. PROTECTION WORKS:

THE LIMITS OF PROTECTION WORKS SHALL BE AS SHOWN IN THE DRAWINGS AND AS DIRECTED BY THE ENGINEER.

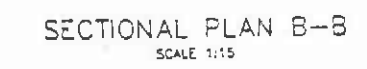
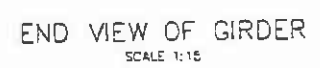
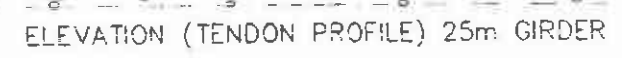
12. TENDER DOCUMENTS, DRAWINGS & CONSTRUCTION DRAWINGS:

- 12.1 TENDER DRAWINGS ISSUED WITH TENDER DOCUMENTS ARE TO APPRAISE THE BIDDERS OF THE GENERAL NATURE & FAIR IDEA OF THE WORK TO PREPARE BOD & TENDER DOCUMENTS. ENGINEER SHALL ISSUE THE DETAILED CONSTRUCTION DRAWINGS & SUCH FIELD SKETCHES FROM TIME TO TIME AS NECESSARY FOR THE EASE OF CONSTRUCTION.
- 12.2 THE CONTRACTOR SHALL CHECK ALL CONSTRUCTION DRAWINGS AND CONTRACT DOCUMENTS CAREFULLY AS SOON AS PRACTICABLE AFTER RECEIPT THERE OF, AND SHALL PROMPTLY ADVISE THE ENGINEER'S REP OF ANY ERRORS OR OMISSIONS THERE IN PRIOR TO START OF ANY CONSTRUCTION ACTIVITIES.

TENDER DRAWINGS



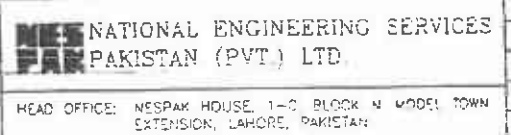
1. FOR GENERAL NOTES REFER DWG NO. P3G001.
2. WORK THIS DRAWING IN CONJUNCTION WITH OTHER RELEVANT DRAWINGS.




JACKING FORCE = 154 M Tons

TABLE 2

1. FOR GENERAL NOTES REFER DRAWING NO. P20001.
2. THE FOLLOWING VALUES HAVE BEEN ASSUMED IN THE CALCULATION OF THEORETICAL ELONGATION/EXTENSION (%), OF TENDONS:
MODULUS OF ELASTICITY: $E = 368,700 \text{ Kg./sq.cm. (28,000 ksi)}$
COEFFICIENT OF CURVATURE FRICTION=0.25 PER RADIAN
WOBBLE FRICTION COEFFICIENT=0.033 PER METER
ANY DEVIATION FROM THE ABOVE VALUES SHALL BE REPORTED TO THE ENGINEER.
3. STRESSING SHALL BE STOPPED AS SOON AS ONE OF THE FOLLOWING CONDITIONS IS FULFILLED:
-STRESS REACHES 0.75 TIMES GUARANTEED ULTIMATE TENSILE STRENGTH (GUTS),
-ACTUAL ELONGATION/EXTENSION REACHES 1.80 %
-IF AT 0.75 GUTS ACTUAL ELONGATION IS STILL BELOW 0.85 %
STRESSING SHALL BE PROCEEDED UP TO MAXIMUM OF 0.80 %
IN THE EVENT OF NON-CONFORMANCE OF ABOVE, THE CABLE MAY BE REPLACED.
4. THE EXTENSION GIVEN IN TABLE IS FOR THE JACKING END.
STRESSING OF GIRDERS SHOULD BE DONE FROM BOTH ENDS.



JAWAD UL HAQ
Project Manager
M/S NESPAK



23m PRESTRESSED GIRDER
CONC. OUTLINE & PRESTRESSING DETAILS

171. JALPATOCERO TO RAJANPUR ROAD PROJECT TENDER DRAWINGS PKC-4, GROUPS, 15m. 31/05/2012 30.08.2012

TENDER DRAWINGS
NOT FOR CONSTRUCTION

REINFORCEMENT
SCHEDULE

MARK	BAR DIA. & SPACING
G01	#4@300
G01A	#4@75
G02	4-#8
G03	2#12-#8
G04	#4@300
G04A	#4@75
G05	#4@75
G06	#4@300
G06A	#4@75
G07	4-#12F
G08	#4@300
G08A	#4@75
G09	#4@75
G10	6-#8
G11	#4@80
G11A	#4@150
G12	#4@75
G13	#4@80
G13A	#4@150
G14	#4@80
G14A	#4@150
G15	4-#8(EF)
G16	6x6-#4
G16A	6x6-#4
G17	#4@150
G18	8-#8
G19	#4@300
G20	#4@80/150
G21	#4@350

LONGITUDINAL SECTION

SECTION A-A
SCALE 1:15

SECTION B-B
(FOR EXTERIOR GIRDER)
(EXTERIOR DIAPHRAGM)
SCALE 1:15

SECTION C-C
(FOR EXTERIOR GIRDER)
(INTERIOR DIAPHRAGM)
SCALE 1:15

SECTION B-B
(FOR INTERIOR GIRDER)
(EXTERIOR DIAPHRAGM)
SCALE 1:15

SECTION C-C
(FOR INTERIOR GIRDER)
(INTERIOR DIAPHRAGM)
SCALE 1:15

SECTION D-D
SCALE 1:15

SECTIONAL PLAN D'-D'
(FOR INTERIOR GIRDER)
SCALE 1:15

SECTIONAL PLAN D'-D'
(FOR EXTERIOR GIRDER)
SCALE 1:15

SECTIONAL PLAN E-E
(FOR EXTERIOR GIRDER)
SCALE 1:15

SECTIONAL PLAN E-E
(FOR INTERIOR GIRDER)
SCALE 1:15

TENDER DRAWINGS



NOTES:

- FOR GENERAL NOTES REFER DWG. NO. P3000.
- ALL PRESTRESSED CONCRETE SHALL BE CLASS D1.
- REINFORCEMENT CONCRETE SHALL BE DEFORMED ROUND BARS OF (GRADE 60) CONFORMING TO AASHTO M-31 (ASTM A-615) WITH MINIMUM YIELD STRENGTH OF 4200 kg/Sq.Cm (60,000 psi).

GOVERNMENT OF PAKISTAN
MINISTRY OF COMMUNICATIONS
NATIONAL HIGHWAY AUTHORITY

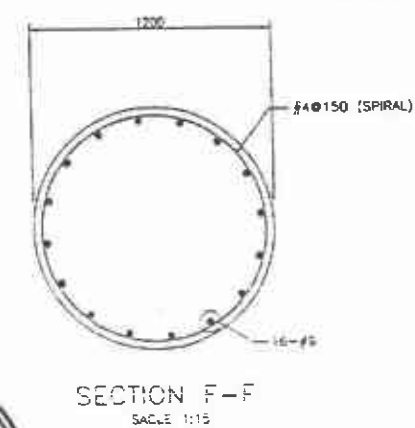
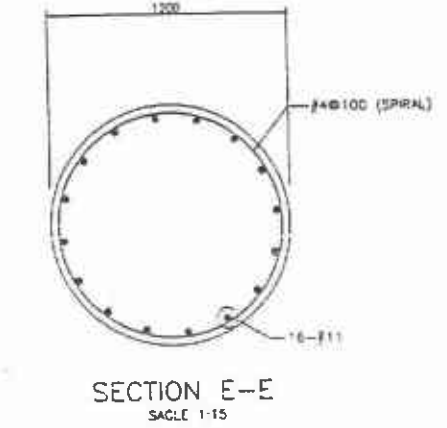
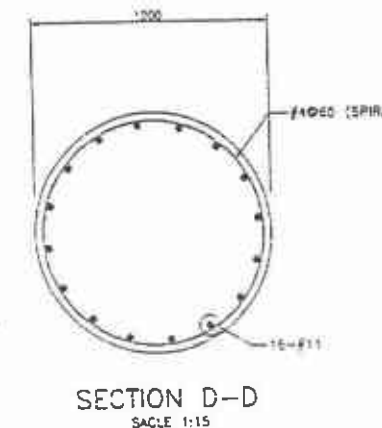
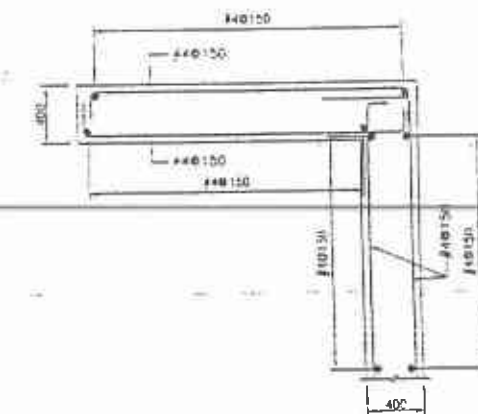
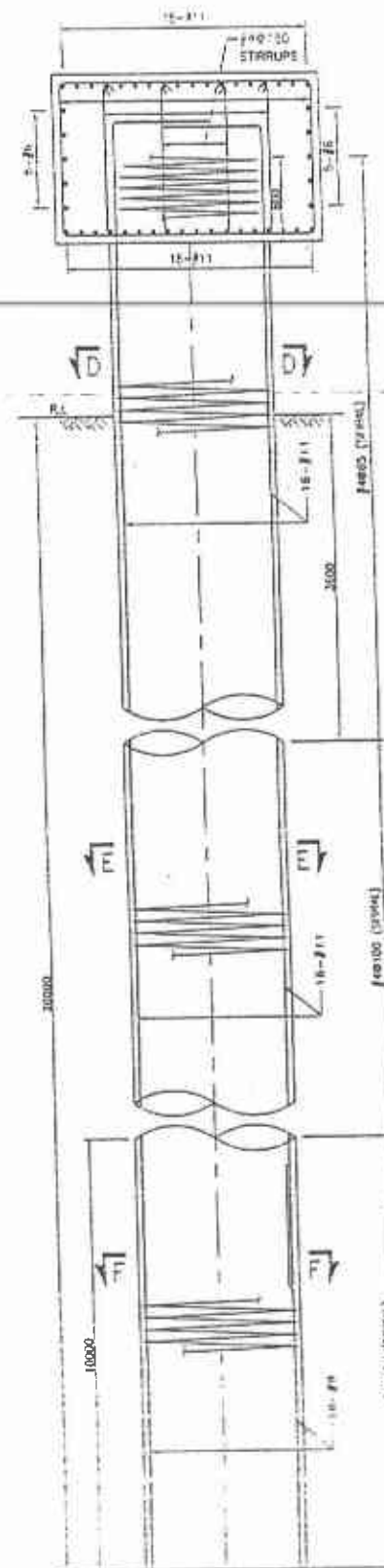
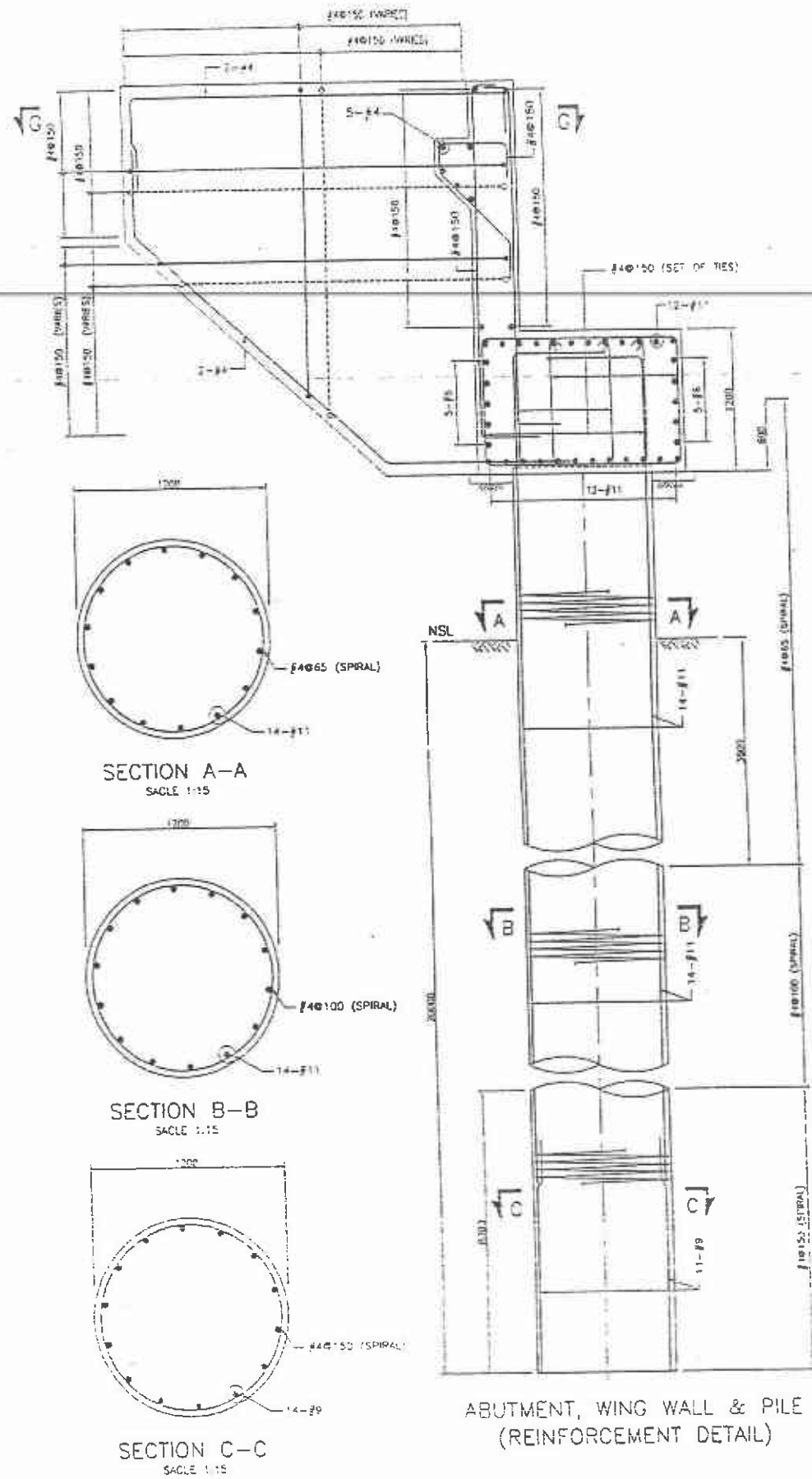
NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD.
HEAD OFFICE: NESPAK HOUSE, 1-C, BLOCK N, MODEL TOWN
EXTENSION, LAHORE, PAKISTAN

04	JAWAD UL HAQ	DRAWN	STATION
03	Project Manager	SUBMITTED	
02	M/S NESPAK	RECOMMENDED	
01		CHK. YCR	
REV	DATE	DESCRIPTION	APPROVED

RATODERO ~ RAJANPUR ROAD
SECTION-V
(ROJHAN TO RAJANPUR)

25m PRESTRESSED GIRDER REINFORCEMENT		SCALE 1:25
DATE	DWG. NO.	REV.
MARCH 2020	3905/102/TO/P30111	

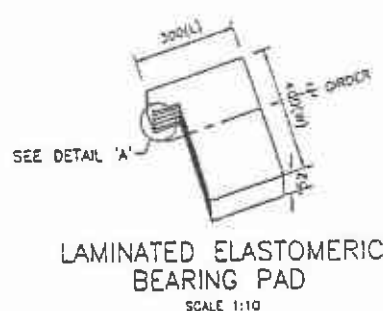
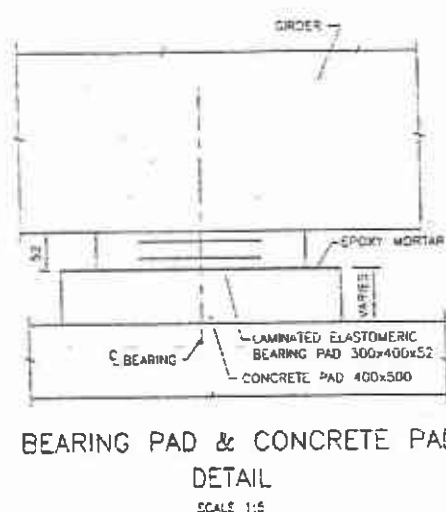
TENDER DRAWINGS
NOT FOR CONSTRUCTION



TENDER DRAWINGS

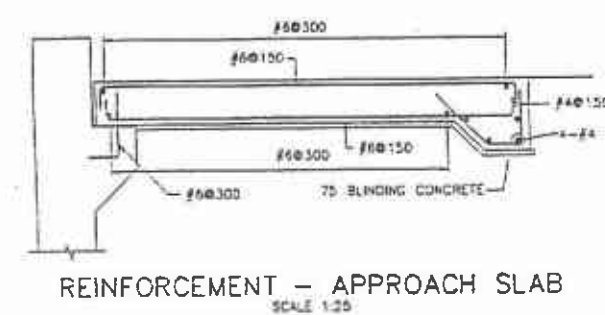
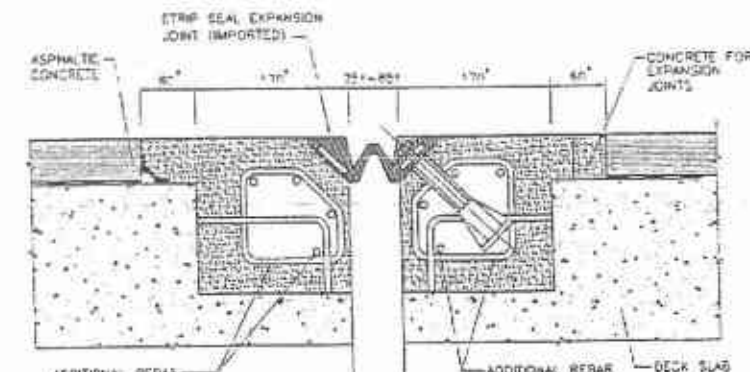
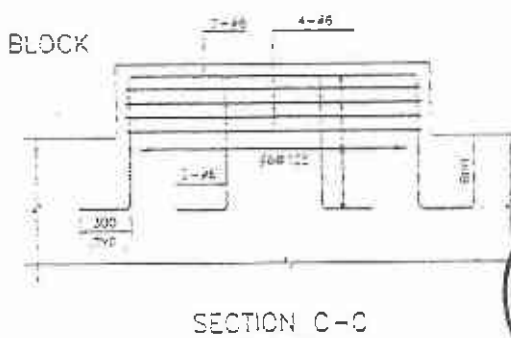
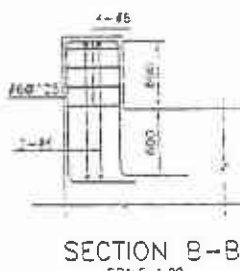
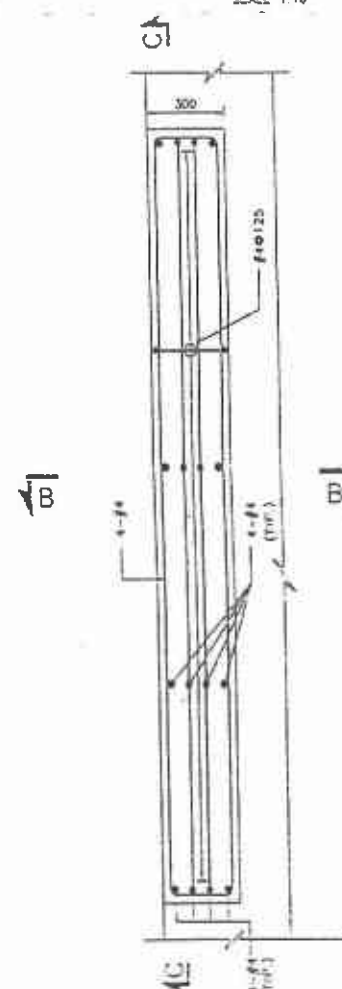
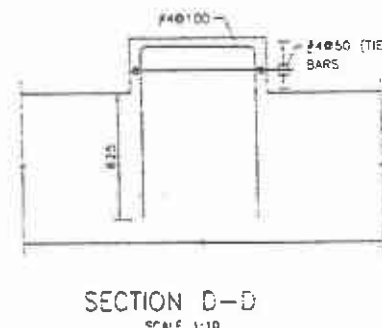
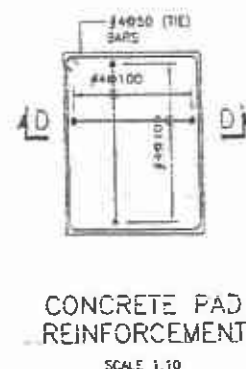
- NOTES: -
- FOR GENERAL NOTES REFER DWG. NO. P30001
 - READ THIS DRAWING IN CONJUNCTION WITH OTHER RELEVANT DWGS.
 - PROVIDE ONE AND HALF (1 1/2) EXTRA TURNS OF SPIRAL AT THE TOP AND BOTTOM OF EACH PILE & AT EACH SEGMENT OF REINFORCEMENT CAGE OR SPLICE OF MAIN REINFORCEMENT.

<p>GOVERNMENT OF PAKISTAN MINISTRY OF COMMUNICATIONS NATIONAL HIGHWAY AUTHORITY</p>	<p>NESPAC NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. HEAD OFFICE: NESPAC HOUSE, 1-C, BLOCK M, MODEL TOWN EXTENSION, LAHORE, PAKISTAN</p>	<p>24 25 26 27</p> <p>JAWAD UL HAQ Project Manager M/S NESPAC</p>	<p>DRAWN SUBMITTED RECOMMENDED CHG. OVER APPROVED</p>	<p>RATODERO ~ RAJANPUR ROAD SECTION-V (ROJHAN TO RAJANPUR)</p>	<p>ABUTMENT AB1, AB2 AND PIER P1 REINFORCEMENT DETAILS</p> <p>DATE: MARCH 2020 DWG. NO: 3905/102/TD/P30114</p> <p>SCALE: 1:15</p>
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A = ELASTOMER LAYER 2.5mm THICK
B = STEEL PLATE LAYER 3mm THICK
C = ELASTOMER LAYER 8mm THICK


DETAIL 'A'
SCALE 1:20

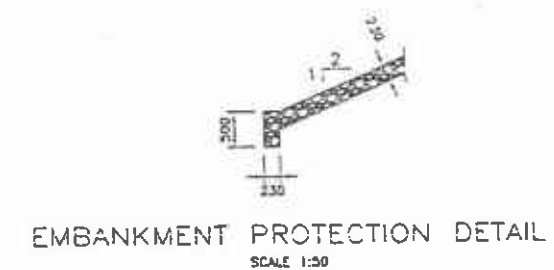
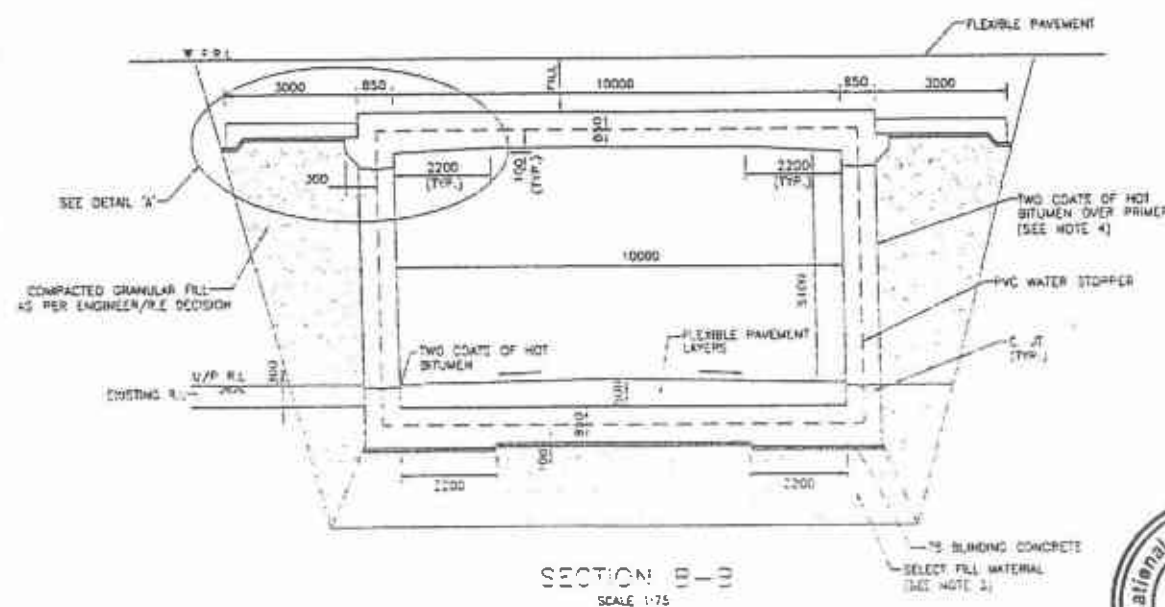
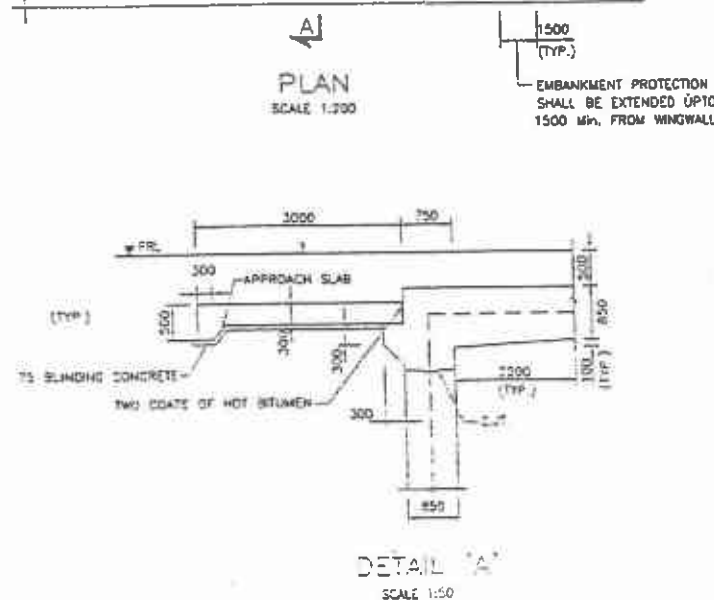
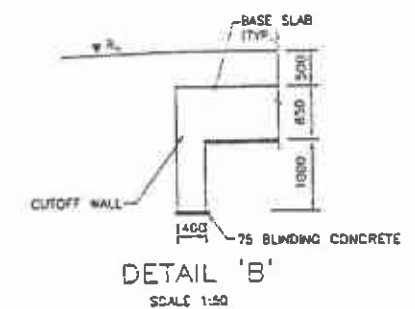
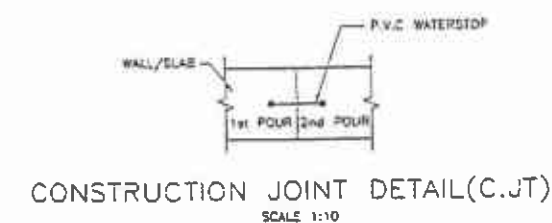
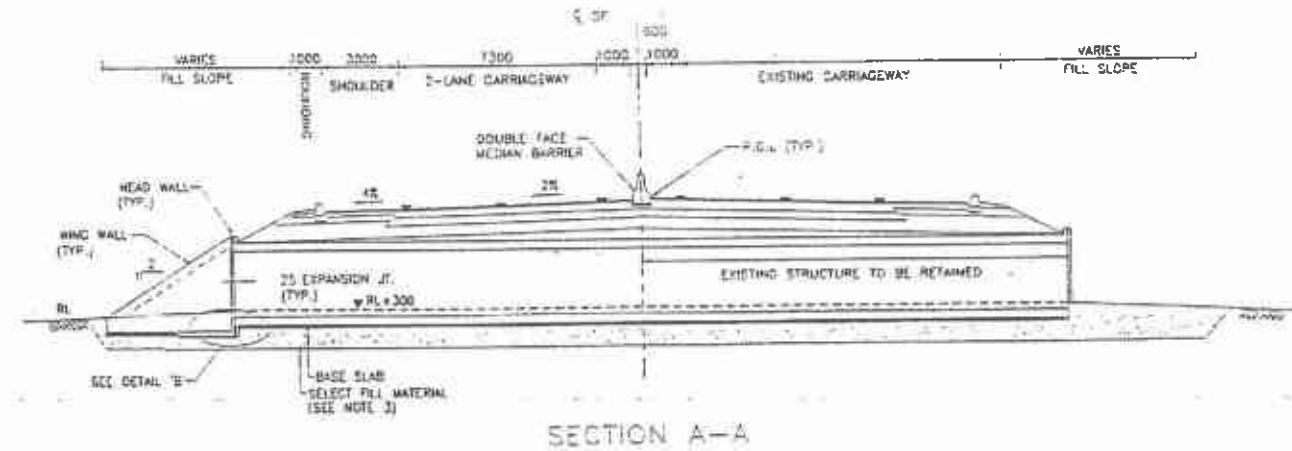
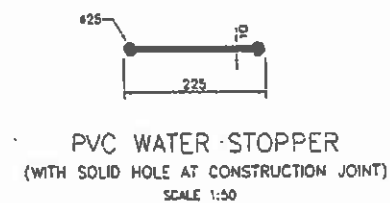
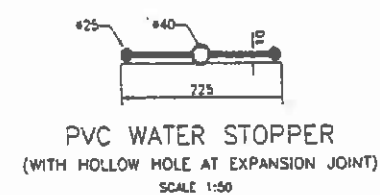
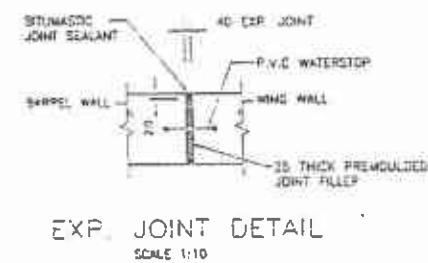
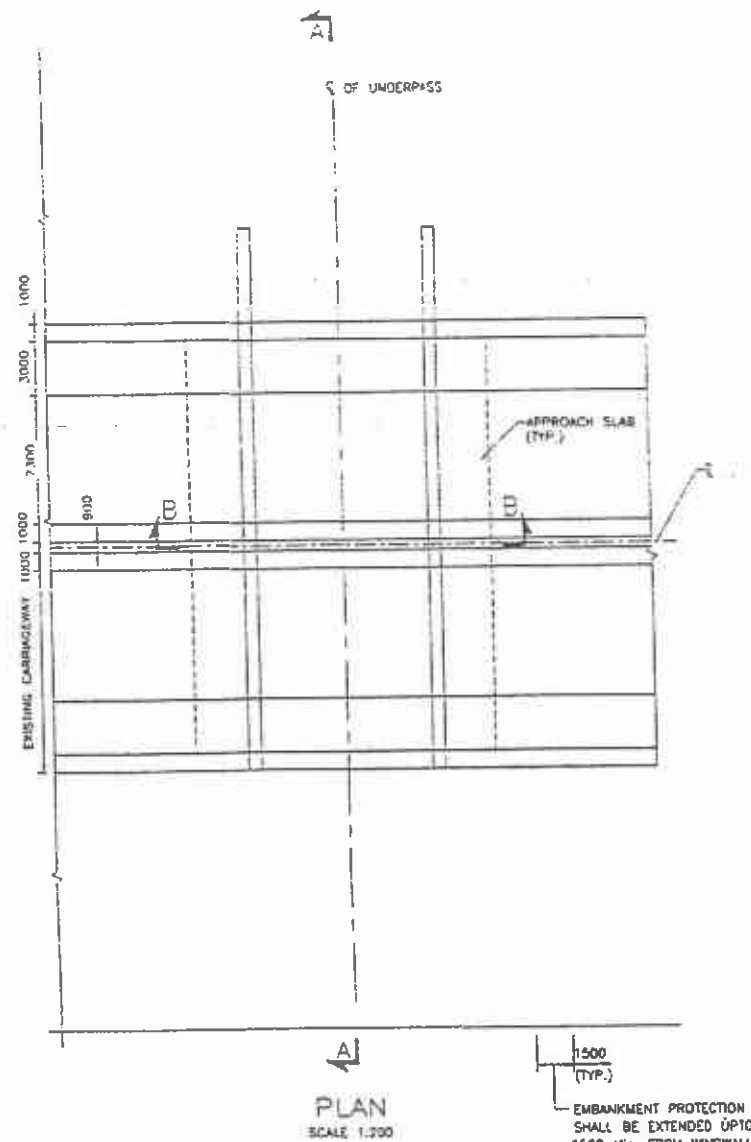


TENDER DRAWINGS

- NOTES. -
- FOR GENERAL NOTES REFER DWG NO. P30001
 - WORK THIS DRAWING IN CONJUNCTION WITH OTHER RELEVANT DRAWINGS
 - ALL REINFORCING STEEL SHALL BE DEFORMED ROUND BARS AND CONFORMING TO MSHTO M-31 OR ASTM A-615 GRADE 60 WITH MINIMUM YIELD STRENGTH OF 4,200 Kg/5q.Cm (60,000 Psi).
 - *THE DIMENSIONS OF EXPANSION JOINT ARE TENTATIVE AND WILL BE FINALIZED ON RECEIPT OF VENDOR'S DRAWINGS.



	GOVERNMENT OF PAKISTAN MINISTRY OF COMMUNICATIONS NATIONAL HIGHWAY AUTHORITY	NESPAK NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. HEAD OFFICE: NESPAK HOUSE, 1-C, BLOCK N, MODEL TOWN EXTENSION, LAHORE, PAKISTAN.	04	11	DRAWN	PTIRHAR	RATODERO ~ RAJANPUR ROAD SECTION-V (ROJHAN TO RAJANPUR)	MISCELLANEOUS DETAILS APPROACH SLAB, BEARING PAD, SHEAR BLOCK, AND EXPANSION JOINT DETAILS DATE: MARCH 2020 DWG NO. 3905/102/C/P30115 REV. 01	SCALE 1:10
			03	JAWABUL HAO	SUBMITTED				
			02	Project Manager	RECOMMENDED				
			01	M/S NESPAK	CHKD/APP				
			REV	DATE	DESCRIPTION	APPROVED			





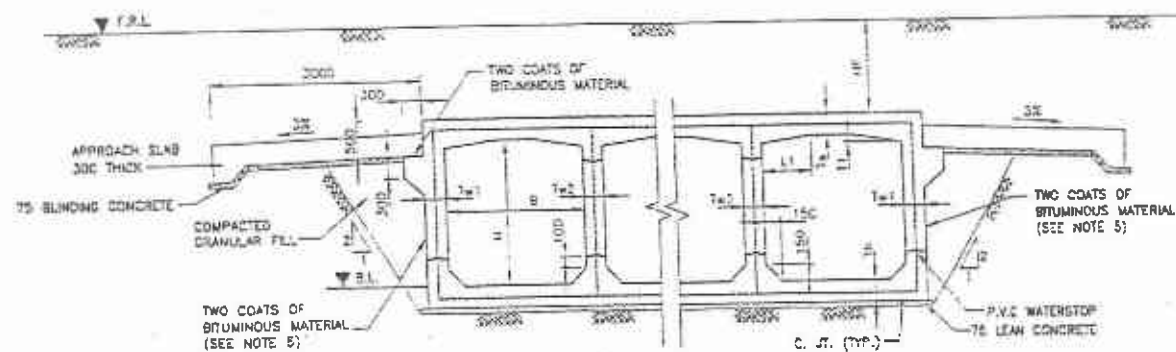
TENDER DRAWINGS

NOTES:—

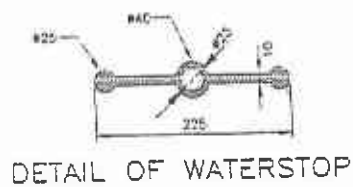
- 1-FOR GENERAL NOTES REFER DWG. NO. 3905/102/T/330001
- 2-READ THIS DRAWINGS WITH OTHER RELEVANT DRAWINGS
- 3-THE FORM OF SELECT FILL SHALL BE DECIDED BY THE GEOTECH ENGINEER AT SITE IF REQUIRED.
- 4-ALL FACES OF CONCRETE IN CONTACT WITH SOIL SHALL BE DAMP PROOFED WITH 2 COATS OF BITUMINOUS MATERIAL
- 5-FOR LOCATION OF UNDERPASSES REFER PLAN & PROFILE DRAWINGS
- 6-THE APPROACH SLAB ALONG WITH SUPPORT KEY IN WALL WILL BE PROVIDED GIRTH IF THE FILL ABOVE THE CULVERT IS LESS THAN 500.



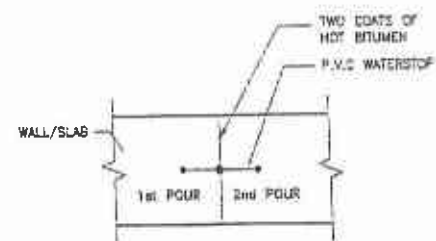
 <p>GOVERNMENT OF PAKISTAN MINISTRY OF COMMUNICATIONS NATIONAL HIGHWAY AUTHORITY</p>	 <p>NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD.</p>	04			DRAWN	UAE AMMAG	<p>RATODERO ~ RAJANPUR ROAD SECTION-V (ROJHAN TO RAJANPUR)</p>	GENERAL ARRANGEMENT CONCRETE OUTLINE ROAD UNDERPASS (10000x5100)		SCALE 1:500
		03		JAWAD UL HAQ	SUBMITTED					
		02		Project Manager	RECOMMENDED					
		01		M/S NESPAK	CHD./VER.					
		REV	DATE	DESCRIPTION	APPROVED	APPROVED				
HEAD OFFICE: NESPAK HOUSE, I-C. BLOCK N, MODEL TOWN EXTENSION, LAHORE, PAKISTAN.								DATE	DWG. NO.	REV.
								MARCH 2020	3905/162/TD/P3UP/17	



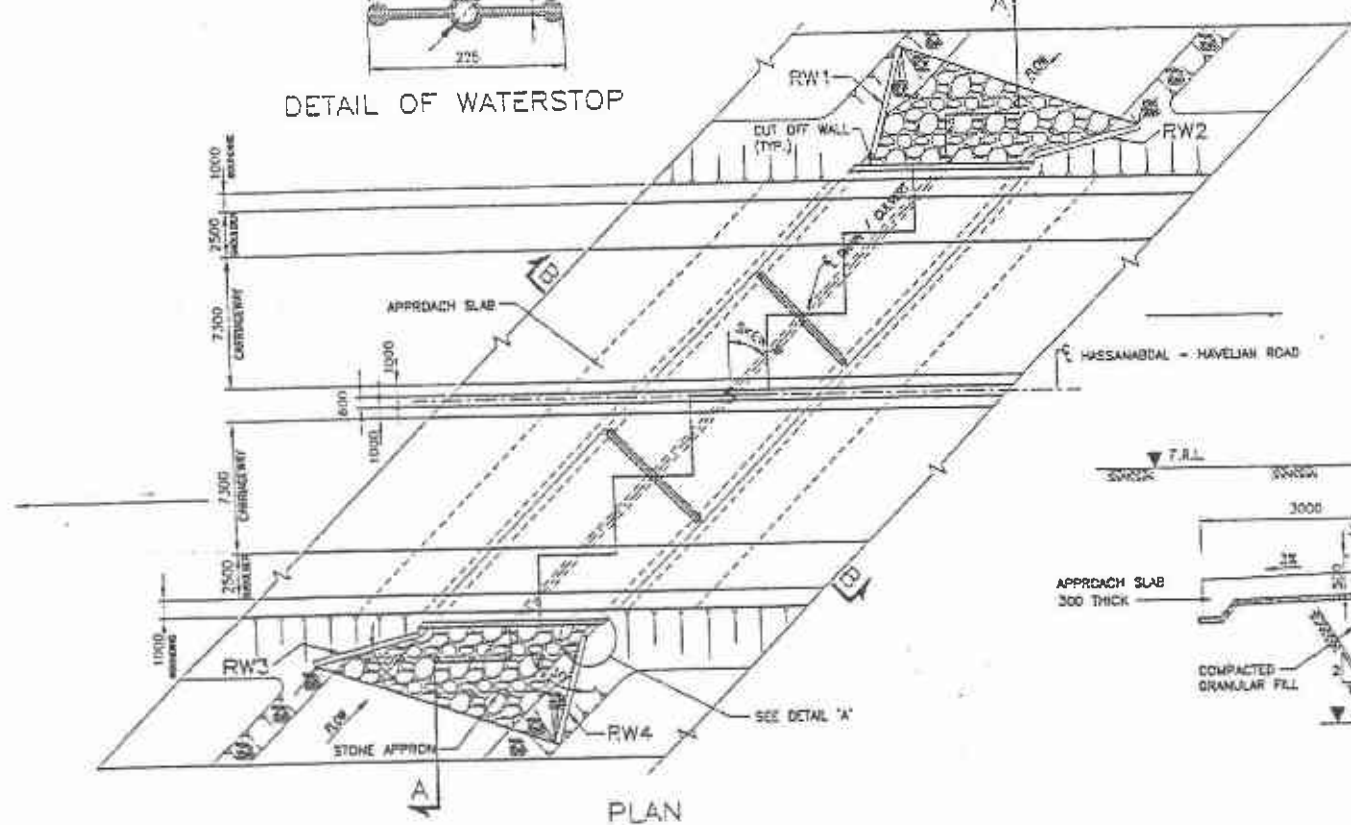
SECTION B-B
(FOR MULTI CELL)



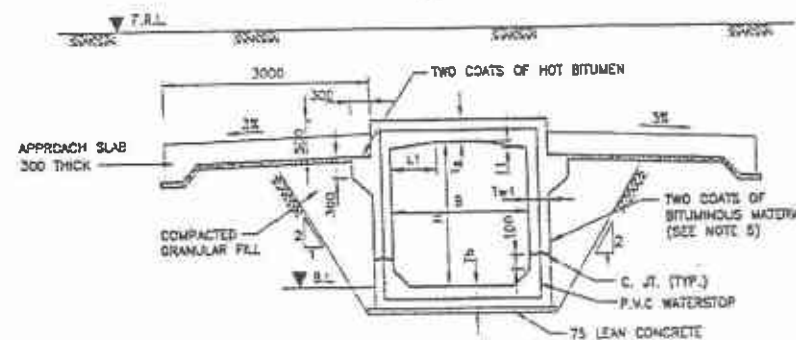
DETAIL OF WATERSTOP



CONTRACTION JOINT DETAIL
SCALE 1:10



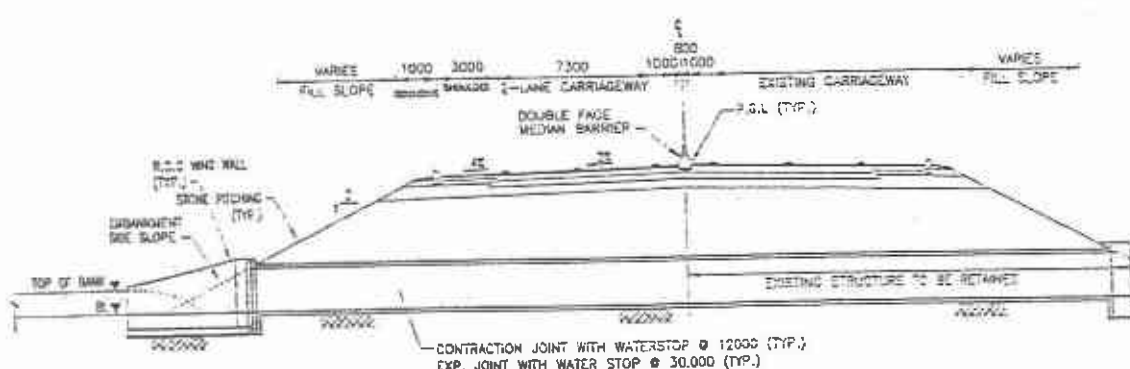
PLAN



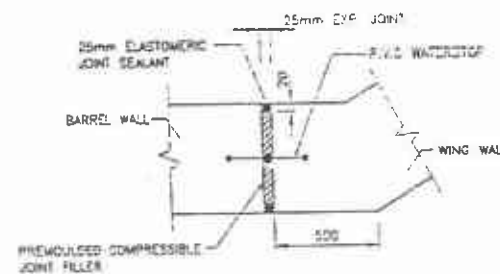
SECTION B-B
(FOR SINGLE CELL)

Sr No.	Chainage	Structure Type	No. of Spans/Pipes	Clear Span Width/Dia. (m)	Clear Height	Slope	Ts & Tb (mm)	Twt (mm)	Tw3 (mm)	T1 (mm)	L1 (mm)
131	224+085	Box Culvert	3	2	1.5	0	250	250	250	150	300
136	234+435	Box Culvert	3	2	1.5	0	250	250	250	150	300
137	234+560	Box Culvert	3	2	1.5	0	250	250	250	150	300
138	236+770	Box Culvert	3	2	1.5	0	250	250	250	150	300
139	236+885	Box Culvert	2	2	1.5	0	250	250	250	150	300
140	237+308	Box Culvert	1	2	1.5	0	250	250	250	150	300
141	237+380	Box Culvert	1	2	1.5	0	250	250	250	150	300
142	237+625	Box Culvert	3	2	1.5	0	250	250	250	150	300
145	238+150	Box Culvert	3	2	1.5	0	250	250	250	150	300
148	238+359	Box Culvert	3	2	1.5	0	250	250	250	150	300
149	239+012	Box Culvert	3	2	1.5	0	250	250	250	150	300
149	239+063	Box Culvert	1	2	1.5	0	250	250	250	150	300
147	239+130	Box Culvert	3	2	1.5	0	250	250	250	150	300

TENDER DRAWINGS



SECTION A-A



DETAIL 'A'



NOTES:-

- 1-ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
- 2-READ THIS DRAWING WITH OTHER RELEVANT DRAWINGS
- 3-ALL CONCRETE SHALL BE REINFORCED CONCRETE CLASS A2.
- 4-REINFORCEMENT FOR REINFORCED CONCRETE SHALL BE DEFORMED ROUND BARS OF (GRADE 60) CONFORMING TO AASHTO M-31(ASTM A615) WITH MINIMUM YIELD STRENGTH OF 4200 kg/98.4cm (80,000psi).
- 5-ALL FACES OF CONCRETE IN CONTACT WITH SOIL SHALL BE DAMP PROOFED WITH 2 LAYERS OF BITUMINOUS MATERIAL.
- 6-GRANULAR FILL MATERIAL SHALL BE LAID IN LAYERS AND COMPACTED WITH MAX. DRY DENSITY OF 95%

STANDARD DIMENSIONS
SCHEDULE FOR BOX CULVERTS

Sl. No.	Culvert	Structure Type	No. of Spans/Pipes	Clear Span Width/Dia. (mm)	Clear Height (mm)	Seam	Ts & Td (mm)	Ts (mm)	Td (mm)	Ts (mm)	Td (mm)	Ts (mm)	Td (mm)
148	223+455 Box Culvert	1	2	1.5	0		250	250	250	150	300		
149	223+765 Box Culvert	1	2	1.5	0		250	250	250	150	300		
150	223+885 Box Culvert	1	2	1.5	0		250	250	250	150	300		
151	223+105 Box Culvert	1	2	1.5	0		250	250	250	150	300		
152	224+005 Box Culvert	1	2	1.5	0		250	250	250	150	300		
153	224+515 Box Culvert	1	2	1.5	0		250	250	250	150	300		
154	225+130 Box Culvert	1	2	1.5	0		250	250	250	150	300		
155	225+425 Box Culvert	1	2	1.5	0		250	250	250	150	300		
156	225+935 Box Culvert	1	2	1.5	0		250	250	250	150	300		
157	226+105 Box Culvert	1	2	1.5	0		250	250	250	150	300		
158	226+185 Box Culvert	1	2	1.5	0		250	250	250	150	300		
159	226+705 Box Culvert	1	2	1.5	0		250	250	250	150	300		
160	227+465 Box Culvert	1	2	1.5	0		250	250	250	150	300		
161	228+435 Box Culvert	1	2	1.5	0		250	250	250	150	300		
162	228+630 Box Culvert	1	2	1.5	0		250	250	250	150	300		
163	228+815 Box Culvert	1	2	1.5	0		250	250	250	150	300		
164	228+945 Box Culvert	1	2	1.5	0		250	250	250	150	300		
165	229+455 Box Culvert	1	2	1.5	0		250	250	250	150	300		
166	229+610 Box Culvert	1	2	1.5	0		250	250	250	150	300		
167	229+680 Box Culvert	1	2	1.5	0		250	250	250	150	300		
168	229+140 Box Culvert	1	2	1.5	0		250	250	250	150	300		
169	229+800 Box Culvert	1	2	1.5	0		250	250	250	150	300		
170	229+860 Box Culvert	1	2	1.5	0		250	250	250	150	300		
171	229+910 Box Culvert	1	2	1.5	0		250	250	250	150	300		
172	229+960 Box Culvert	1	2	1.5	0		250	250	250	150	300		
173	229+970 Box Culvert	1	2	1.5	0		250	250	250	150	300		
174	229+980 Box Culvert	1	2	1.5	0		250	250	250	150	300		
175	230+005 Box Culvert	1	2	1.5	0		250	250	250	150	300		
176	230+060 Box Culvert	1	2	1.5	0		250	250	250	150	300		
177	230+310 Box Culvert	1	2	1.5	0		250	250	250	150	300		
178	230+785 Box Culvert	1	2	1.5	0		250	250	250	150	300		
179	230+875 Box Culvert	1	2	1.5	0		250	250	250	150	300		
180	230+885 Box Culvert	1	2	1.5	0		250	250	250	150	300		
181	231+170 Box Culvert	1	2	1.5	0		250	250	250	150	300		
182	231+620 Box Culvert	1	2	1.5	0		250	250	250	150	300		
183	231+760 Box Culvert	1	2	1.5	0		250	250	250	150	300		
184	232+000 Box Culvert	1	2	1.5	0		250	250	250	150	300		
185	232+250 Box Culvert	1	2	1.5	0		250	250	250	150	300		
186	232+560 Box Culvert	1	2	1.5	0		250	250	250	150	300		
187	232+760 Box Culvert	1	2	1.5	0		250	250	250	150	300		
188	232+990 Box Culvert	1	2	1.5	0		250	250	250	150	300		
189	233+080 Box Culvert	1	2	1.5	0		250	250	250	150	300		
190	233+125 Box Culvert	1	2	1.5	0		250	250	250	150	300		
191	233+385 Box Culvert	1	2	1.5	0		250	250	250	150	300		
192	233+765 Box Culvert	1	2	1.5	0		250	250	250	150	300		
193	234+000 Box Culvert	1	2	1.5	0		250	250	250	150	300		
194	234+030 Box Culvert	1	2	1.5	0		250	250	250	150	300		
195	234+120 Box Culvert	1	2	1.5	0		250	250	250	150	300		
196	234+120 Box Culvert	1	2	1.5	0		250	250	250	150	300		
197	234+526 Box Culvert	1	2	1.5	0		250	250	250	150	300		
198	234+585 Box Culvert	1	2	1.5	0		250	250	250	150	300		
199	234+600 Box Culvert	1	2	1.5	0		250	250	250	150	300		
200	234+750 Box Culvert	1	2	1.5	0		250	250	250	150	300		
201	234+840 Box Culvert	1	2	1.5	0		250	250	250	150	300		
202	235+055 Box Culvert	1	2	1.5	0		250	250	250	150	300		
203	235+305 Box Culvert	1	2	1.5	0		250	250	250	150	300		
204	235+400 Box Culvert	1	2	1.5	0		250	250	250	150	300		
205	235+550 Box Culvert	1	2	1.5	0		250	250	250	150	300		
206	235+675 Box Culvert	1	2	1.5	0		250	250	250	150	300		
207	235+705 Box Culvert	1	2	1.5	0		250	250	250	150	300		
208	235+780 Box Culvert	1	2	1.5	0		250	250	250	150	300		
209	235+870 Box Culvert	1	2	1.5	0		250	250	250	150	300		
210	235+880 Box Culvert	1	2	1.5	0		250	250	250	150	300		

DETAIL OF WATERSTOP

CONTRACTION JOINT DETAIL
SCALE 1:10

TENDER DRAWINGS

- NOTES:
- 1-ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
 - 2-READ THIS DRAWING WITH OTHER RELEVANT DRAWINGS
 - 3-ALL CONCRETE SHALL BE REINFORCED CONCRETE CLASS /2
 - 4-REINFORCEMENT FOR REINFORCED CONCRETE SHALL BE DEFORMED ROUND BARS OF (GRADE 60) CONFORMING TO ASTM A-615 (ASTM A615) WITH MINIMUM YIELD STRENGTH OF 4200 kg/cm² (60,000psi).
 - 5-ALL FACES OF CONCRETE IN CONTACT WITH SOIL SHALL BE DAMP PROOFED WITH 2 LAYERS OF BITUMINOUS MATERIAL
 - 6-GRANULAR FILL MATERIAL SHALL BE LAID IN LAYERS AND COMPACTED WITH MAX. DRY DENSITY OF 95%

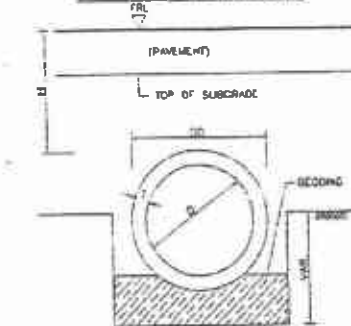


GOVERNMENT OF PAKISTAN MINISTRY OF COMMUNICATIONS NATIONAL HIGHWAY AUTHORITY	NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD.	04	JAWAD UL HAQ Project Manager M/S NESPAC	DRAWN BY	RAJA SHAFIQ	RATODERO ~ RAJANPUR ROAD SECTION-V (ROJHAN TO RAJANPUR)	TITLE	BOX CULVERT GENERAL ARRANGEMENT	SCALE		
		03		SUBMITTED BY			DATE	MARCH 2020	DRAWING NO.	3905/102/TD/P&CA/198	REV.
		02		RECOMMENDED BY							
		01		CHD./VER. BY							
		REV.		DATE	DESCRIPTION		APPROVED	APPROVED BY			

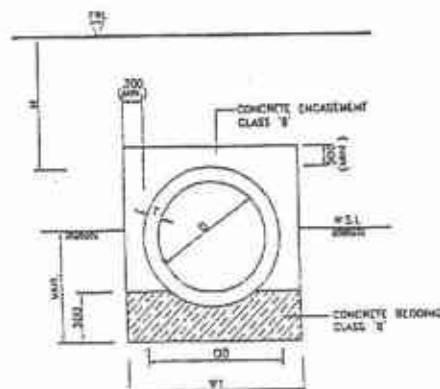
STANDARD DIMENSIONS
SCHEDULE FOR BOX CULVERTS

No.	Span	Structure Type	No. of Spans/Profile	Clear Span Width (D.A. mm)	Clear Height (mm)	Side Slope	Top Width (mm)	Bottom Width (mm)	Top Thickness (mm)	Bottom Thickness (mm)
101	200x200	Box Culvert	1	200	200	1:1	250	250	150	150
102	250x250	Box Culvert	1	250	250	1:1	300	300	150	150
103	300x300	Box Culvert	1	300	300	1:1	350	350	150	150
104	350x350	Box Culvert	1	350	350	1:1	400	400	150	150
105	400x400	Box Culvert	1	400	400	1:1	450	450	150	150
106	450x450	Box Culvert	1	450	450	1:1	500	500	150	150
107	500x500	Box Culvert	1	500	500	1:1	550	550	150	150
108	550x550	Box Culvert	1	550	550	1:1	600	600	150	150
109	600x600	Box Culvert	1	600	600	1:1	650	650	150	150
110	650x650	Box Culvert	1	650	650	1:1	700	700	150	150
111	700x700	Box Culvert	1	700	700	1:1	750	750	150	150
112	750x750	Box Culvert	1	750	750	1:1	800	800	150	150
113	800x800	Box Culvert	1	800	800	1:1	850	850	150	150
114	850x850	Box Culvert	1	850	850	1:1	900	900	150	150
115	900x900	Box Culvert	1	900	900	1:1	950	950	150	150
116	950x950	Box Culvert	1	950	950	1:1	1000	1000	150	150
117	1000x1000	Box Culvert	1	1000	1000	1:1	1050	1050	150	150
118	1050x1050	Box Culvert	1	1050	1050	1:1	1100	1100	150	150
119	1100x1100	Box Culvert	1	1100	1100	1:1	1150	1150	150	150
120	1150x1150	Box Culvert	1	1150	1150	1:1	1200	1200	150	150
121	1200x1200	Box Culvert	1	1200	1200	1:1	1250	1250	150	150
122	1250x1250	Box Culvert	1	1250	1250	1:1	1300	1300	150	150
123	1300x1300	Box Culvert	1	1300	1300	1:1	1350	1350	150	150
124	1350x1350	Box Culvert	1	1350	1350	1:1	1400	1400	150	150
125	1400x1400	Box Culvert	1	1400	1400	1:1	1450	1450	150	150
126	1450x1450	Box Culvert	1	1450	1450	1:1	1500	1500	150	150
127	1500x1500	Box Culvert	1	1500	1500	1:1	1550	1550	150	150
128	1550x1550	Box Culvert	1	1550	1550	1:1	1600	1600	150	150
129	1600x1600	Box Culvert	1	1600	1600	1:1	1650	1650	150	150
130	1650x1650	Box Culvert	1	1650	1650	1:1	1700	1700	150	150
131	1700x1700	Box Culvert	1	1700	1700	1:1	1750	1750	150	150
132	1750x1750	Box Culvert	1	1750	1750	1:1	1800	1800	150	150
133	1800x1800	Box Culvert	1	1800	1800	1:1	1850	1850	150	150
134	1850x1850	Box Culvert	1	1850	1850	1:1	1900	1900	150	150
135	1900x1900	Box Culvert	1	1900	1900	1:1	1950	1950	150	150
136	1950x1950	Box Culvert	1	1950	1950	1:1	2000	2000	150	150
137	2000x2000	Box Culvert	1	2000	2000	1:1	2050	2050	150	150
138	2050x2050	Box Culvert	1	2050	2050	1:1	2100	2100	150	150
139	2100x2100	Box Culvert	1	2100	2100	1:1	2150	2150	150	150
140	2150x2150	Box Culvert	1	2150	2150	1:1	2200	2200	150	150
141	2200x2200	Box Culvert	1	2200	2200	1:1	2250	2250	150	150
142	2250x2250	Box Culvert	1	2250	2250	1:1	2300	2300	150	150
143	2300x2300	Box Culvert	1	2300	2300	1:1	2350	2350	150	150
144	2350x2350	Box Culvert	1	2350	2350	1:1	2400	2400	150	150
145	2400x2400	Box Culvert	1	2400	2400	1:1	2450	2450	150	150
146	2450x2450	Box Culvert	1	2450	2450	1:1	2500	2500	150	150
147	2500x2500	Box Culvert	1	2500	2500	1:1	2550	2550	150	150
148	2550x2550	Box Culvert	1	2550	2550	1:1	2600	2600	150	150
149	2600x2600	Box Culvert	1	2600	2600	1:1	2650	2650	150	150
150	2650x2650	Box Culvert	1	2650	2650	1:1	2700	2700	150	150
151	2700x2700	Box Culvert	1	2700	2700	1:1	2750	2750	150	150
152	2750x2750	Box Culvert	1	2750	2750	1:1	2800	2800	150	150
153	2800x2800	Box Culvert	1	2800	2800	1:1	2850	2850	150	150
154	2850x2850	Box Culvert	1	2850	2850	1:1	2900	2900	150	150
155	2900x2900	Box Culvert	1	2900	2900	1:1	2950	2950	150	150
156	2950x2950	Box Culvert	1	2950	2950	1:1	3000	3000	150	150
157	3000x3000	Box Culvert	1	3000	3000	1:1	3050	3050	150	150
158	3050x3050	Box Culvert	1	3050	3050	1:1	3100	3100	150	150
159	3100x3100	Box Culvert	1	3100	3100	1:1	3150	3150	150	150
160	3150x3150	Box Culvert	1	3150	3150	1:1	3200	3200	150	150
161	3200x3200	Box Culvert	1	3200	3200	1:1	3250	3250	150	150
162	3250x3250	Box Culvert	1	3250	3250	1:1	3300	3300	150	150
163	3300x3300	Box Culvert	1	3300	3300	1:1	3350	3350	150	150
164	3350x3350	Box Culvert	1	3350	3350	1:1	3400	3400	150	150
165	3400x3400	Box Culvert	1	3400	3400	1:1	3450	3450	150	150
166	3450x3450	Box Culvert	1	3450	3450	1:1	3500	3500	150	150
167	3500x3500	Box Culvert	1	3500	3500	1:1	3550	3550	150	150
168	3550x3550	Box Culvert	1	3550	3550	1:1	3600	3600	150	150
169	3600x3600	Box Culvert	1	3600	3600	1:1	3650	3650	150	150
170	3650x3650	Box Culvert	1	3650	3650	1:1	3700	3700	150	150
171	3700x3700	Box Culvert	1	3700	3700	1:1	3750	3750	150	150
172	3750x3750	Box Culvert	1	3750	3750	1:1	3800	3800	150	150
173	3800x3800	Box Culvert	1	3800	3800	1:1	3850	3850	150	150
174	3850x3850	Box Culvert	1	3850	3850	1:1	3900	3900	150	150
175	3900x3900	Box Culvert	1	3900	3900	1:1	3950	3950	150	150
176	3950x3950	Box Culvert	1	3950	3950	1:1	4000	4000	150	150
177	4000x4000	Box Culvert	1	4000	4000	1:1	4050	4050	150	150
178	4050x4050	Box Culvert	1	4050	4050	1:1	4100	4100	150	150
179	4100x4100	Box Culvert	1	4100	4100	1:1	4150	4150	150	150
180	4150x4150	Box Culvert	1	4150	4150	1:1	4200	4200	150	150
181	4200x4200	Box Culvert	1	4200	4200	1:1	4250	4250	150	150
182	4250x4250	Box Culvert	1	4250	4250	1:1	4300	4300	150	150
183	4300x4300	Box Culvert	1	4300	4300	1:1	4350	4350	150	150
184	4350x4350	Box Culvert	1	4350	4350	1:1	4400	4400	150	150
185	4400x4400	Box Culvert	1	4400	4400	1:1	4450	4450	150	150
186	4450x4450	Box Culvert	1	4450	4450	1:1	4500	4500	150	150
187	4500x4500	Box Culvert	1	4500	4500	1:1	4550	4550	150	150
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189	4600x4600	Box Culvert	1	4600	4600	1:1	4650	4650	150	150
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207	5500x5500	Box Culvert	1	5500	5500	1:1	5550	5550	150	150
208	5550x5550	Box Culvert	1	5550	5550	1:1	5600	5600	150	150
209	5600x5600	Box Culvert	1	5600	5600	1:1	5650	5650	150	150
210	5650x5650	Box Culvert	1	5650	5650	1:1	5700	5700	150	150
211	5700x5700	Box Culvert	1	5700	5700	1:1	5750	5750	150	150
212	5750x5750	Box Culvert	1	5750	5750	1:1	5800	5800	150	150
213	5800x5800	Box Culvert	1	5800	5800	1:1	5850	5850	150	150
214	5850x5850	Box Culvert	1	5850	5850	1:1	5900	5900	150	150
215	5900x5900	Box Culvert	1	5900	5900	1:1	5950	5950	150	150
216	5950x5950	Box Culvert	1	5950	5950	1:1	6000	6000	150	150
217	6000x6000	Box Culvert	1	6000	6000	1:1	6050	6050	150	150
218	6050x6050	Box Culvert	1	6050	6050	1:1	6100	6100	150	150
219	6100x6100	Box Culvert	1	6100	6100	1:1	6150	6150	150	150
220	6150x6150	Box Culvert	1	6150	6150	1:1	6200	6200	150	150
221	6200x6200	Box Culvert	1	6200	6200	1:1	6250	6250	150	150
222	6250x6250	Box								

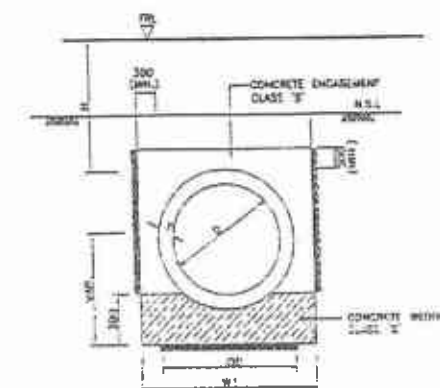
GENERAL DEFINITIONS



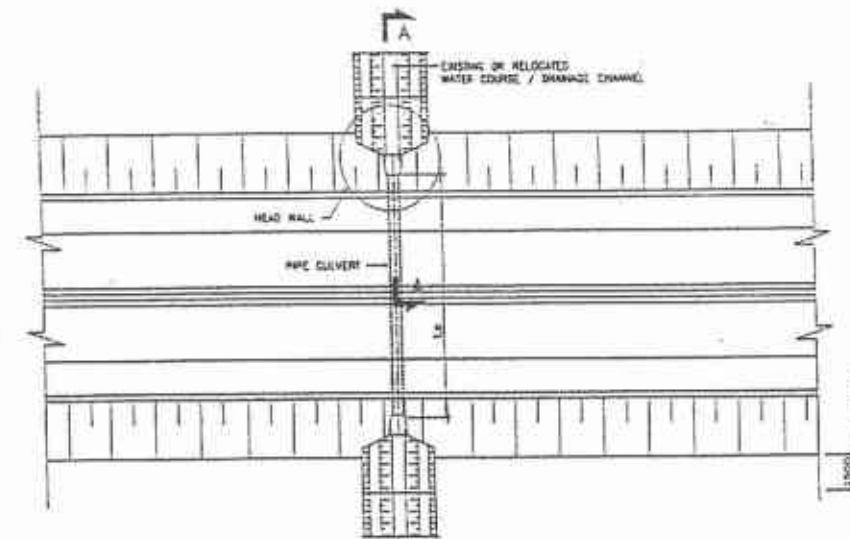
SINGLE PIPE CULVERT



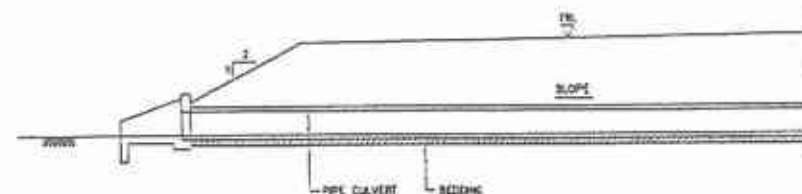
TRENCH DETAILS
SINGLE PIPE CULVERT
POSITIVE PROJECTION



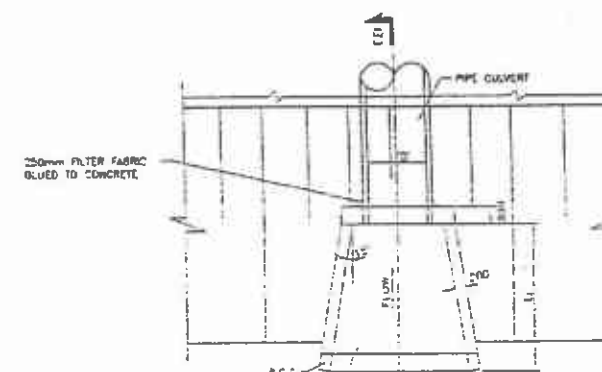
TRENCH DETAILS
SINGLE PIPE CULVERT
NEGATIVE PROJECTION



PLAN



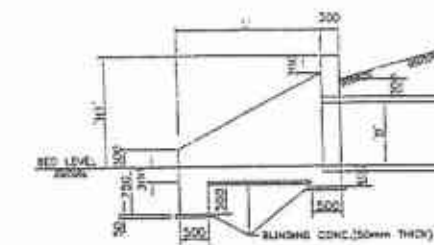
SECTION A-A
SCALE 1:100



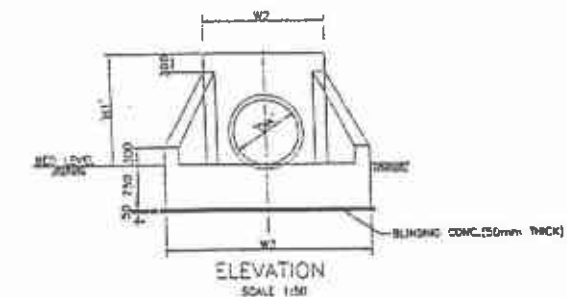
HEAD WALL PLAN
SCALE 1:50

PIPE SCHEDULE AND INLET / OUTLET DIMENSIONS

BEDDING TYPE	DIA. Ø	THICK-NESS T	OUTSIDE DIA. Ø O	H1	L1	POSITIVE PROJECTION			NEGATIVE PROJECTION			POSITIVE PROJECTION/NEGATIVE PROJECTION	
						W1	W2	W3	W1	W2	W3	CONCRETE ENCASMENT	CONCRETE BEDDING
CONCRETE	750	90	940	1450	2150	1510	2000	3000	1710	2000	3000	CLASS 'B' CONCRETE	CLASS 'B' CONCRETE
CONCRETE	900	100	1100	1600	2400	1700	2000	3000	1700	2000	3000	CLASS 'B' CONCRETE	CLASS 'B' CONCRETE
CONCRETE	1200	125	1450	1925	3000	2060	2000	3000	1710	2000	3000	CLASS 'B' CONCRETE	CLASS 'B' CONCRETE



SECTION B-B
SCALE 1:50



ELEVATION
SCALE 1:50

TENDER DRAWINGS

NOTES:-

- ALL DIMENSIONS ARE IN MILLIMETER UNLESS NOTED OTHERWISE.
- FOR GENERAL NOTES REFER DMC NO. 3903/101/TD/P30001.
- FOR LOCATIONS AND INVERT LEVELS OF PIPE CULVERTS REFER PLAN AND PROFILE DRAWINGS.
- CULVERTS SHALL BE PROTECTED BY THE MINIMUM OF 0.9m OF COVER BEFORE PERMITTING HEAVY CONSTRUCTION EQUIPMENTS TO PASS OVER.
- CLASS 'B' CONCRETE SHALL BE USED FOR CONCRETE BEDDING AND CONCRETE ENCASMENT.
- CONCRETE CLASS 'A1' SHALL BE USED FOR INLET/OUTLET STRUCTURES.
- DIMENSIONS OF CONCRETE PIPE CAN BE CHANGED UNDER THE RESIDENT ENGINEER'S APPROVAL HOWEVER - REINFORCED CONCRETE PIPES SHALL BE MANUFACTURED AND TESTED IN ACCORDANCE WITH ASHTO DESIGNATION ASTM DESIGNATION C 76 W RAIL TYPE 'B'.
- FOR NEGATIVE PROJECTION INSTALLATION TRENCH WIDTHS MUST NOT EXCEED DIMENSIONS INDICATED.

