WORKS AND SERVICES DEPARTMENT
GOVERNMENT OF SINDH

ADB Asian Development Bank

LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)

PACKAGE No. 18

SH – 1

REHABILITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO GHUMRO VILLAGE VIA JHALI KALWARI INCLUDING LINKS

(Length: 16.15 kms, Width: 3.65 & 5.5 m)

DESIGN CONSULTANT
ECIL
In association with
AA

Engineering Consultant Int'l. (Pvt.) Ltd.
A.A.ASSOCAITES

JULY - 2023

TENDER DRAWING

GENERAL DRAWINGS

LIST OF DRAWINGS

GENERAL DRAWINGS

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SH-1 GEN-12	TYPICAL CROSS SECTIONS (LINK 1-D) REHABILITATION (3.65m)
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PLAN AND PROFILE (SH-01)

DWG. NO.	TITLE
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HWY-SH01-PP-02	PLAN AND PROFILE (RD. 1+000 TO RD. 2+000)
HWY-SH01-PP-03	PLAN AND PROFILE (RD. 2+000 TO RD. 3+000)
HWY-SH01-PP-04	PLAN AND PROFILE (RD. 3+000 TO RD. 4+000)
HWY-SH01-PP-05	PLAN AND PROFILE (RD. 4+000 TO RD. 5+000)
HWY-SH01-PP-06	PLAN AND PROFILE (RD. 5+000 TO RD. 6+000)
HWY-SH01-PP-07	PLAN AND PROFILE (RD. 6+000 TO RD. 7+000)
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HWY-SH01-PP-11	PLAN AND PROFILE (RD. 10+000 TO RD. 11+000)
HWY-SH01-PP-12	PLAN AND PROFILE (RD. 11+000 TO RD. 12+000)
HWY-SH01-PP-13	PLAN AND PROFILE (RD. 12+000 TO RD. 12+864)

PLAN AND PROFILE SH1 (LINK 1-B)

DWG. NO.	TITLE
HWY-SH1-1B-PP-01	PLAN AND PROFILE (RD. 0+000 TO RD. 1+000)
HWY-SH1-1B-PP-02	PLAN AND PROFILE (RD. 1+000 TO RD. 2+000)
HWY-SH1-1B-PP-03	PLAN AND PROFILE (RD. 2+000 TO RD. 2+359.371)

PLAN AND PROFILE SH1 (LINK 1-C)

DWG. NO.	TITLE
HWY-SH1-1C-PP-01	PLAN AND PROFILE (RD. 0+000 TO RD. 0+200.308)

PLAN AND PROFILE SH1 (LINK 1-D)

DWG. NO.	TITLE
HWY-SH1-1D-PP-01	PLAN AND PROFILE (RD. 0+000 TO RD. 0+724.591)

CLIENT:- ADB Asian Development Bank

EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH

PROJECT:- LOAN NO. 4279 (COL): EMERGENCY FLOOD ASSISTANT PROJECT (EFAP)

DESIGN CONSULTANT: ECIL In association with AA

PROJECT ROAD:- **SH-1** Rehablitation of road from Sukkur Larkana Road @ Kheerthar Canal to Jhali Kalwari

TITLE:- LIST OF DRAWINGS

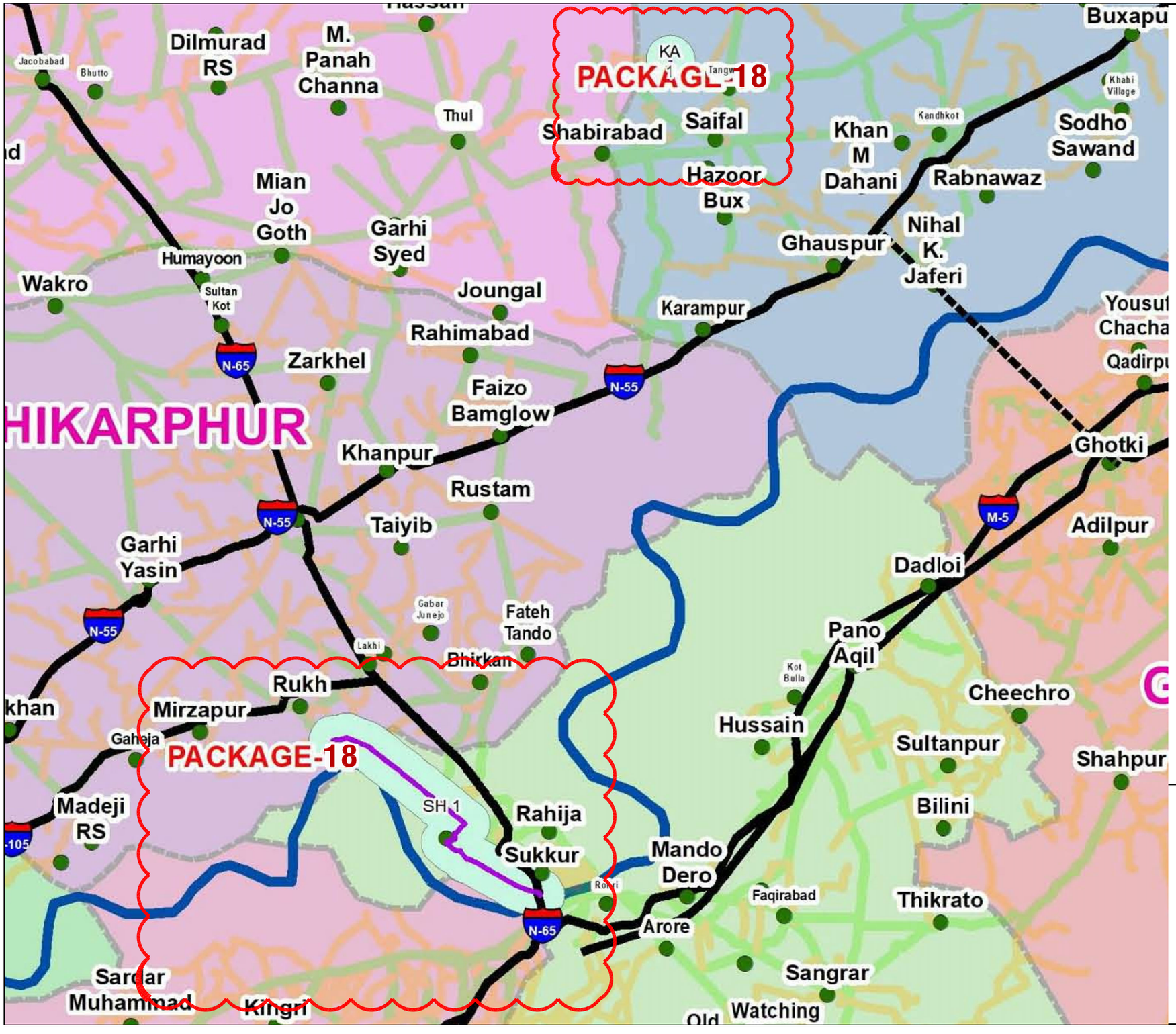
ED. NO.	DATE:-	DESCRIPTION

DRAWN:	N.S.SIDDIQUI
DESIGN:	HINA ZEESHAN
CHECKED:	MEHMOOD
DATE:	JUNE, 2023

DRAWING NO. SH-1 GEN-01

Scale:- N.T.S.

Edition:- 0



CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with AA	PROJECT ROAD:- **PACKAGE - 18 (SH-1 & KA-1)** TITLE:- KEY PLAN	ED.NO. / DATE / DESCRIPTION	DRAWN: M. NOMAN SIDDIQUI DESIGNED: NAVEED HASAN CHECKED: BUX ALI ABRO DATE: JULY, 2023	DRAWING NO. Scale:- N.T.S. Edition. 0

D:\E drive (16-09-2015)\HIGHWAY\SINDH ROADS\ZEESHAN SAHAB\SHIKARPUR-SH-1\ SH-1 GEN-02.dwg

CLIENT:- Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279 (COL): EMERGENCY FLOOD ASSISTANT PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with	PROJECT ROAD:- **SH - 1** Rehablitation of road from Sukkur Larkana Road @ Kheerthar Canal to Jhali Kalwari TITLE:- LOCATION PLAN	ED. NO.	DATE:-	DESCRIPTION	DRAWN: N.S.SIDDIQUI DESIGN: HINA ZEESHAN CHECKED: MEHMOOD DATE: JUNE, 2023	DRAWING NO. SH-1 GEN-02 Scale:- 1:18000 (A1) 1:36000 (A3) Edition:- 0

GENERAL NOTES

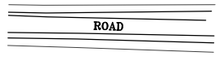
1. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE NOTED.
2. GEOMETRIC DESIGN CRITERIA OF THE PROJECT IS BASED ON "CLIENT INSTRUCTIONS WHICH IS NOT MEETING CRITERIA MENTIONED IN REQUEST FOR PROPOSAL (RFP).
3. ROADWAY PLANS (SCALE 1:1000 FOR A1–SHEET/1:2000 APPROX. FOR A3 SHEET) HAVE BEEN PREPARED FROM THE FIELD SURVEY (CARRIED OUT IN YEAR NOVEMBER–2017) DATA BASED UPON COORDINATES AND LEVELS CONFORM TO SOP PATTERN.
4. CROSS SECTIONS OF THE EXISTING AND NEW ROAD HAVE BEEN TAKEN AT INTERVALES OF 25M. OR LESS IF REQUIRED.
5. PAVEMENT DESIGN HAS BEEN PREPARED BY CONSULTANTS FOR EXISTING ROAD AND NEW ROAD BASED ON CBR VALUES AND TRAFFIC LOADS AS PER RECOMMENDATIONS UNDER TRL & AASHTO.
6. TYPICAL CROSS SECTION HAS BEEN PREPARED FOR EACH PAVEMENT DESIGN/STRATEGY.
7. LOCATION OF ALL EXISTING STRUCTURES HAVE BEEN MARKED ON ROADWAY PLAN DRAWINGS.
8. QUANTITIES HAVE BEEN CALCULATED FOR EARTH WORK AND OTHER WORK'S ITEMS FOR ESTIMATION PURPOSES.
9. BASED ON ROAD SAFETY AUDITS IN FIELD, FOLLOWING DETAILS WITH TYPICAL DESIGNED DRAWINGS HAVE BEEN PROVIDED ACCORDING TO SITE REQUIREMENTS.
   - TRAFFIC SIGNS.
   - PAVEMENT MARKING DETAILS.
   - CROSS SECTION OF PLAIN AND MOUNTANIOUS AREA, DRAIN IN DETAIL.
10. ROADWAY PLAN DRAWINGS (1:2000) SHOULD BE READ IN CONJUCTION WITH ROAD FURNITURE DRAWINGS (TYPICAL), STRUCTURES AND DRAINAGE DRAWINGS, ETC.
11. ACTUAL QUANTUM OF REHABILITATION WORK FOR EXISTING STRUCTURES SHALL BE DETERMENED BY THE RESIDENT ENGINEER AT THE TIME OF EXECUTION FOR EACH STRUCTURE.
12. EXISTING LEVELS, DIMENSIONS AND TOPOGRAPHY REPRESENT CONDITIONS AT THE TIME OF SURVEY DONE IN NOVEMBER–2017.
13. EACH DRAWING SHALL BE READ IN CONJUNCTION WITH OTHER DRAWINGS, WHERE NECESSARY.
14. NOTES GIVEN ON DRAWINGS ADJACENT TO A SECTION PERTAIN TO THE PARTICULAR DETAIL.
15. THE SOAKED C.B.R OF EMBANKMENT MATERIAL SHALL NOT BE LESS THAN 10% AT MODIFIED AASHTO DENSITY IN ACCORDANCE WITH COMPACTION ZONE OF EMBANKMENT AS SPECIFIED.
16. THE SUBGRADE MATERIAL/WHERE USED, SHALL HAVE A MINIMUM C.B.R. (SOAKED) OF 20% AT 95% M.D.D. AASHTO T–180.
17. BEFORE STARTING PAVEMENT MARKING, CONTRACTOR SHALL SUBMIT WORKING DETAILS SHOWING EXACT LOCATION, TYPE AND SIZE OF MARKING FOR APPROVAL OF ENGINEER.
18. FOR AVOIDING ABRUPT CHANGE IN PROFILE AT BOP AND EOP OVERLAY IS TO BE REDUCED GRADUALLY BEFORE BOP AND AFTER EOP TO MATCH THE ADJOINING PROFILE IN TRANSITION WITHIN 30 TO 40 M. LENGTH WITHOUT FORMING ANY KINK AS SHOWN ON DRAWINGS OR AS DIRECTED BY THE RESIDENT ENGINEER. FOR ALL SECTIONS AND STRETCHES.
19. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVISION OF DIVERSIONS FOR TRAFFIC AND ITS MANITENANCE, SIGNS AND ALL SAFETY MEASURES DURING THE CONSTRUCTION AT NO ADDITTIONAL COST TO THE CLIENT.
20. THE EMBANKMENT SLOPES SHALL BE TRIMMED AND DRESSED TO DESIGN LINE AS SHOWN ON DRAWINGS.
21. ANY DAMAGE DONE TO THE UTILITIES DURING EXCAVATION/EXECUTION OF WORK SHALL BE REPAIRED BY THE CONTRACTOR AT NO EXTRA COST TO THE CLIENT.
22. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DIVERSIONS OF WATER AT STRUCTURES LOCATIONS INCLUDING DYKES AND TRENCHES ETC. WITHOUT ANY ADDITIONAL COST.
23. THE ROAD CONSTRUCTION SHALL BE PLANNED IN A MANNER THAT A MAXIMUM STRETCH OF 3–4 Km SHALL BE TAKEN IN HAND FOR CONSTRUCTION AT A TIME, AND TRAFFIC IS PROVIDED WITH A PROPER AND WELL MAINTAINED DIVERSION.
24. THE EXISTING LOCALIZED HUMPS SHALL REQUIRED REMOVAL AND TREATMENT AS PER THE SITE CONDITIONS FOR ACCOMMODATING FULL PAVEMENT THICKNESSES AS DIRRECTED BY THE ENGINEER.
25. LOCATION OF UNDER GROUND CABLES/UTILITIES SHOWN ON PLANS ARE APPROXIMATE. EXACT LOCATION SHALL BE DETERMINED BY THE CONTRACTOR AT NO EXTRA COST.
26. SUBGRADE IN CUT:
    i) IN CUT AREAS (COMMON SOILS) SUBGRADE SOILS (TOP 300mm) MUST BE EXCAVATED, RELAID AND COMPACTED IN LAYERS (EACH 150mm THICK) TO THE SPECIFIED DENSITY AND MUST MEET THE MATERIAL REQUIREMENT FOR CLASSIFICATION, PLASTICITY INDEX (PI) AND SOAKED CBR 25%. THE UNSUITABLE SOILS IF OBTAINED FROM EXCAVATION SHALL BE DISPOSED OFF AND REPLACED WITH SUITABLE SOILS MEETING THE REQUIREMENT OF SUB GRADE/COMPACTED FILL MATERIAL CBR $\geqslant$ 25%.
    ii) IN ROCK CUT THE EXCAVATION LIMIT LINE SHALL BE AT THE BOTTOM LEVEL OF SUBBASE COURSE.
    iii) IN ROCK CUT AREAS (UNSUITABLE MATERIALS LIKE SHALE) THE EXCAVATION LIMIT LINE SHALL BE 300mm BELOW THE BOTTOM LEVEL OF SUBBASE COURSE. THIS DEPTH OF 300mm SHALL BE REPLACED WITH SUITABLE SOILS MEETING THE REQUIREMENT OF SUB GRADE/ COMPACTED FILL MATERIAL CBR $\geqslant$ 25%.
27. PRECAST CONCRETE/METAL GUARD RAIL IS TO BE PROVIDED WHERE FILL HEIGHT EXCEED 3.00M OR AS DIRECTED BY THE ENGINEER.

anees D:\E drive (16-09-2015)\HIGHWAY\SINDH ROADS\ZEESHAN SAHAB\GENERAL DRAWINGS\ TH-1 GEN-03.dwg

CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with AA	PROJECT ROAD:- TITLE:- GENERAL NOTES	ED.NO.	DATE	DESCRIPTION	DRAWN: N. SAQIB SIDDIQUI DESIGNED: HINA ZEESHAN CHECKED: NAVEED HASSAN DATE: JUNE, 2023	DRAWING NO. GEN-03 Scale:- N.T.S. Edition. 0

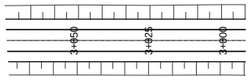
SYMBOLS

EXISTING ROAD

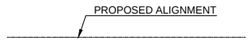


TRACK / PATH

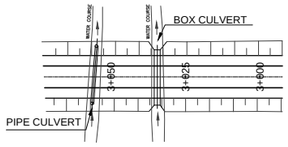
PROPOSD ROAD



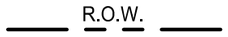
PROPOSD ALLIGNMENT



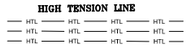
PROPOSD CULVERTS



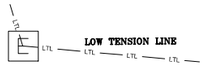
RIGHT OF WAY



HIGH TENSION LINE



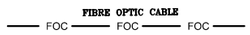
LOW TENSION LINE



ELECTRIC POLE,
ELECTRIC WIRE

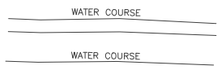
TELEPHONE POLE,
TELEPHONE WIRE

FIBRE OPTIC CABLE

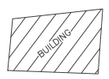


PIPE LINE

WATER COURSE

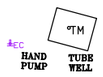


BUILDING AND OTHER STRUCTURES



MASJID

HAND PUMP / TUBE WELL



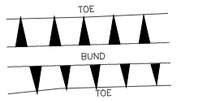
GPS CONTROL POINTS

BENCH MARK

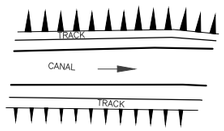
LIGHT POLE-LP

SYMBOLS

EXISTING BUND



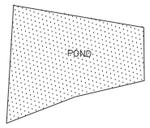
CANAL / WAH



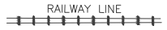
TREES

GRAVE YARD

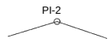
POND



RAILWAY LINE



P.I. STATION



ABBREVIATIONS

GENERAL

B.O.P.	BEGENING OF PROJECT
BM	BENCH MARK
CL	CENTRE LINE
CM	CUBIC METER
Cm	CENTIMETER
D.S.T.	DOUBLE SURFACE TREATMENT
DRG.	DRAWING
D/S	DOWN STREAM
E	EAST, EASTING, EXTERNAL DISTANCE
E.O.P.	END OF PROJECT
F.R.L.	FINISHED ROAD LEVEL
H.F.L.	HIGH FLOOD LEVEL
KM	KILOMETRE
LT.	LEFT
RT.	RIGHT
I.L	INVERT LEVEL

ABBREVIATIONS

GENERAL

M	METRE
MH	MAN HOLE
mm	MILLIMETRE
N	NORTH, NORTHING
N.G.L.	NATURAL GROUND LEVEL / EXISTING LEVEL
N.T.S.	NOT TO SCALE
RD.	REDUCED DISTANCE
RH.	RIGHT HAND CURVE
R.O.W.	RIGHT OF WAY
STA	STATION
TR	TRAVERSE STATION
U/S	UP SREAM
WC	WATER COURSE

HORIZONTAL CURVE

P.I.#	POINT OF INTERSECTION NUMBER
I	DEFLECTION ANGLE
R	RADIUS
T	TANGENT LENGTH
E	EXTERNAL ORIDINATE
L	LENGTH OF CURVE / ARC LENGTH
C	CHORD LENGTH
M	MIDDLE ORIDINATE
PC	POINT OF CURVATURE
PT	POINT OF TANGECY

VERTICAL CURVE

STA	RD. AT VERTICAL POINT OF INTERSECTION
VPC	VERTICAL POINT OF CURVATURE
VPT	VERTICAL POINT OF TANGENCY
EL	ELEVATION AT VERTICAL POINT OF INTERSECTION
CURVE LEN	LENGTH OF VERTICAL CURVE
E	EXTERNAL DISTANCE
K	RATE OF VERTICAL CURVATURE / K FACTOR
F.R.L.	FINISHED ROAD LEVEL AT PROFILE GRADE
RD.	REDUCED DISTANCE

SUPERELEVATION

SUPERELEVATION	%
SR	SUPERELEVATION RUN OFF LENGTH
TR	TANGENT RUNOUT LENGTH
TRAN.	TRANSITION
STRAIGHT	NORMAL CROSS SLOPE

CLIENT:- ADB Asian Development Bank

EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH

PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)

DESIGN CONSULTANT: ECIL In association with AA

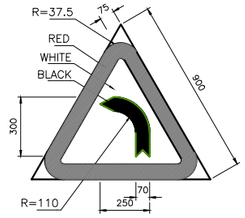
PROJECT ROAD:-

TITLE:- SYMBOLS AND ABBREVIATIONS

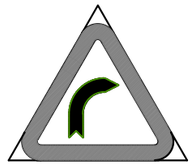
ED.NO.	DATE	DESCRIPTION

DRAWN: N. SAQIB SIDDIQUI
DESIGNED: HINA ZEESHAN
CHECKED: NAVEED HASSAN
DATE: JUNE, 2023

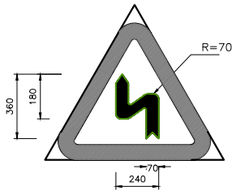
DRAWING NO. GEN-04
Scale:- N.T.S.
Edition. 0



101 LEFT BEND

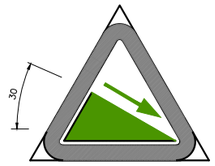


102 RIGHT BEND



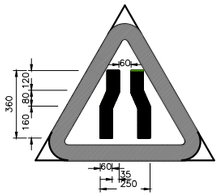
103 SERIES OF BENDS
(FIRST TO LEFT)

104 SERIES OF BENDS
(FIRST TO RIGHT)



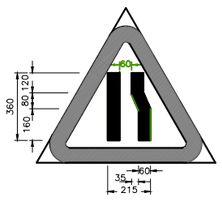
105 STEEP DESCENT

106 STEEP ASCENT

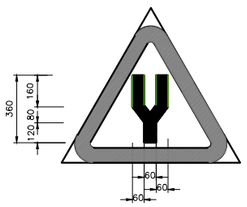


107 CARRIAGEWAY NARROWS
(BOTH SIDES)

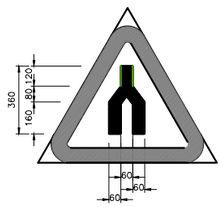
108 CARRIAGEWAY NARROWS
(FROM LEFT)



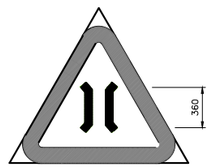
109 CARRIAGEWAY NARROWS
(FROM RIGHT)



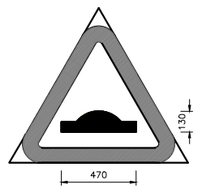
110 DUAL CARRIAGEWAY STARTS



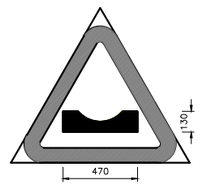
111 DUAL CARRIAGEWAY ENDS



112 NARROW BRIDGE
(BOTH SIDES)



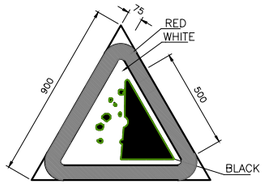
113 HUMP RIDGE



114 DIP

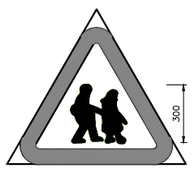
115 SLIPPERY ROAD

116 ROAD TO QUAY/BANK

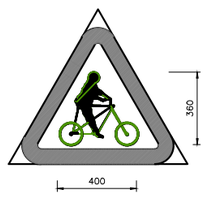


117 FALLING ROCKS

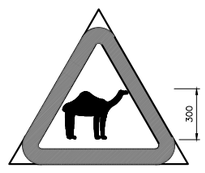
118 PEDESTRAIN CROSSING



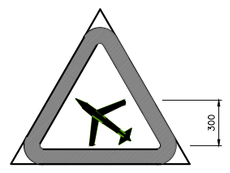
119 CHILDREN CROSSING OR SCHOOL



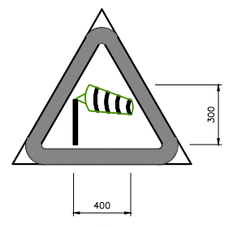
120 CYCLISTS



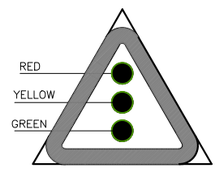
121 ANIMALS CROSSING



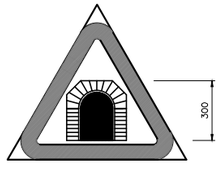
122 LOW FLYING AIRCRAFT



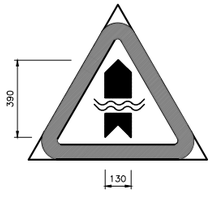
123 CROSS WIND



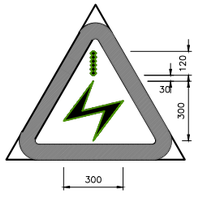
124 TRAFFIC SIGNALS



125 TUNNEL AHEAD

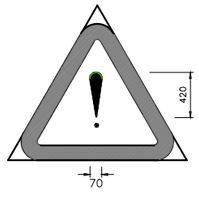


126 IRISH CROSSING / CAUSEWAY



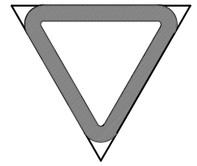
127 OVERHEAD ELECTRIC CABLE

128 RESTRICTED HEADROOM AHEAD

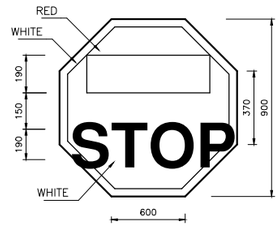


129 HAZARD OR OTHER DANGERS

130 ROUNDABOUT



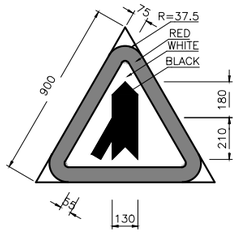
131 GIVE WAY



132 STOP

anees D:\E drive (16-09-2015)\HIGHWAY\SINDH ROADS\ZEESHAN SAHAB\GENERAL DRAWINGS\ TH-1 GEN-05.dwg

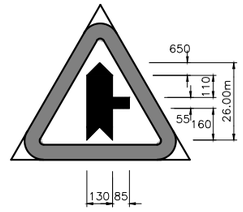
CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with AAI	PROJECT ROAD:- TITLE:- TYPICAL ROAD SIGNS (SHEET 1 OF 3)	ED.NO.	DATE	DESCRIPTION	DRAWN: N. SAQIB SIDDIQUI DESIGNED: HINA ZEESHAN CHECKED: NAVEED HASSAN DATE: JUNE, 2023	DRAWING NO. GEN-05 Scale:- N.T.S. Edition. 0



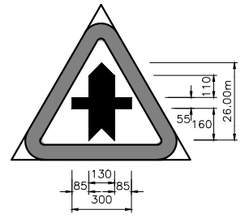
(133) MINOR ROAD FROM LEFT(SKEW)

(134) MINOR ROAD FROM RIGHT(SKEW)

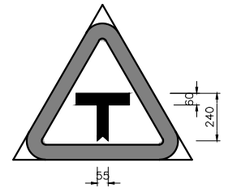
(135) MINOR ROAD FROM LEFT



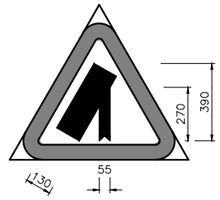
(136) MINOR ROAD FROM RIGHT



(137) CROSS ROADS

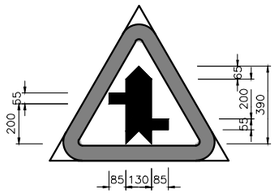


(138) T.JUNCTION AHEAD



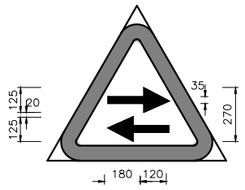
(139) MAJOR ROAD FROM LEFT

(140) MAJOR ROAD FROM RIGHT

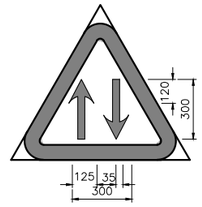


(141) STAGGERD JUNCTION
(FIRST TO RIGHT)

(142) STAGGERD JUNCTION
(FIRST TO LEFT)

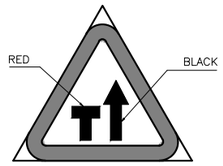


(143) TWO WAY TRAFFIC
ACROSS ONE WAY CARRIAGEWAY

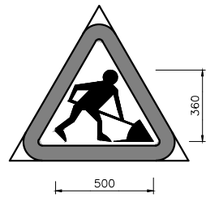


(144) TWO WAY TRAFFIC AHEAD

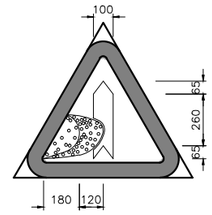
(145) DIVERT TO OPPOSITE CARRIAGEWAY



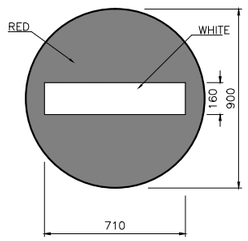
(146) LEFT LANE OF DUAL CARRIAGEWAY
CLOSED



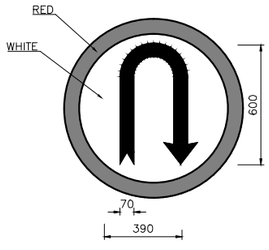
(147) ROAD WORKS



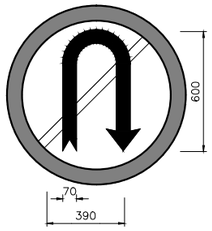
(148) SAND DUNES



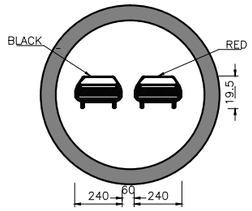
(201) NO ENTRY
FOR ALL VEHICLES



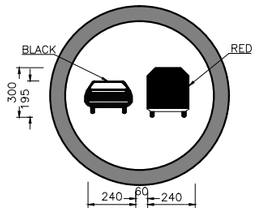
(202) U-TURN ALLOWED



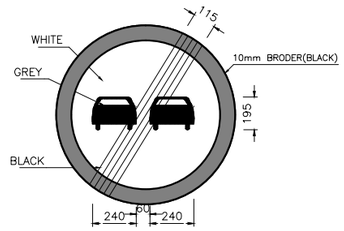
(203) NO U-TURN



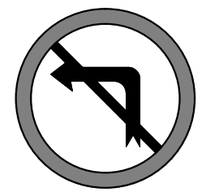
(204) NO OVERTAKING
BY ALL VEHICLES



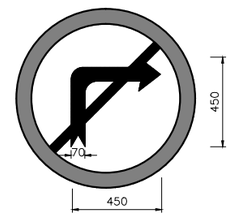
(205) NO OVERTAKING
BY GOODS VEHICLES



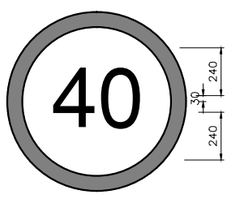
(206) END OF
OVERTAKING RESTRICTION



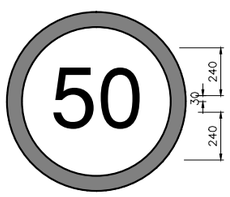
(207) NO LEFT TURN



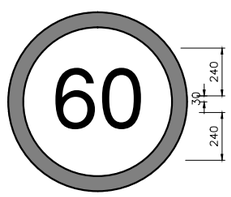
(208) NO RIGHT TURN



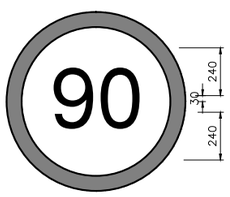
(209) MAX. SPEED LIMIT
AS SHOWN



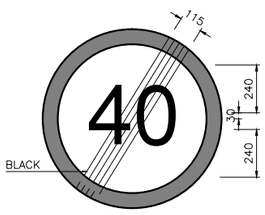
(209A) MAX. SPEED LIMIT
AS SHOWN



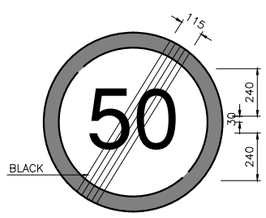
(210) MAX. SPEED LIMIT
AS SHOWN



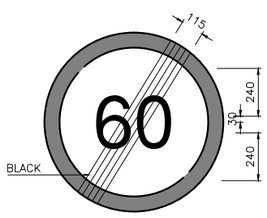
(211) MAX. SPEED LIMIT
AS SHOWN



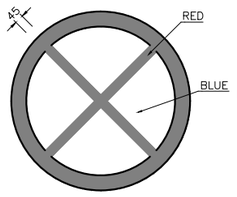
(212) END SPEED LIMIT



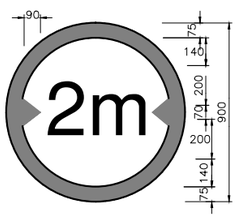
(213) END SPEED LIMIT



(214) END SPEED LIMIT



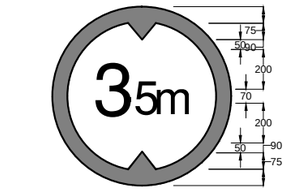
(215) NO STOPPING
FOR ANY REASON



(216) NO ENTRY FOR VEHICLES WITH OVERALL
WIDTH EXCEEDING SHOWN LIMIT

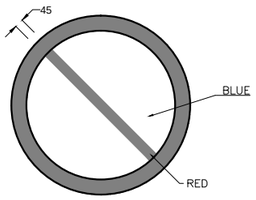
anees D:\E drive (16-09-2015)\HIGHWAY\SINDH ROADS\ZEESHAN SAHAB\GENERAL DRAWINGS\ TH-1 GEN-05A.dwg

CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with	PROJECT ROAD:- TITLE:- TYPICAL ROAD SIGNS (SHEET 2 OF 3)	ED.NO.	DATE	DESCRIPTION	DRAWN: N. SAQIB SIDDIQUI DESIGNED: HINA ZEESHAN CHECKED: NAVEED HASSAN DATE: JUNE, 2023	DRAWING NO. GEN-05A Scale:- N.T.S. Edition. 0



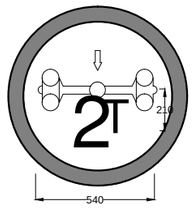
217

NO ENTRY FOR VEHICLES WITH OVERALL HEIGHT EXCEDDING SHOWN LIMIT



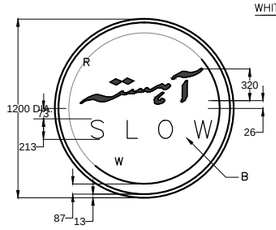
218

NO STOPPING EXCEPT FOR LOADING & UNLOADING PASSENGERS OR GOODS



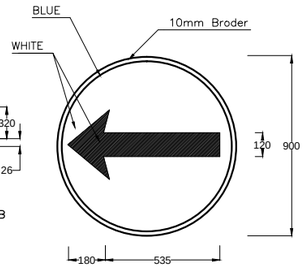
219

NO ENTRY FOR VEHICLES HAVING ONE AXLE LOAD EXCEEDING SHOWN LIMIT



300

KEEP EITHER SIDES

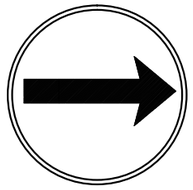


301

TURN LEFT

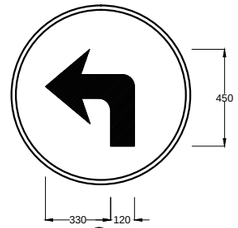
302

GO AHEAD ONLY



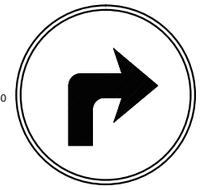
303

TURN RIGHT



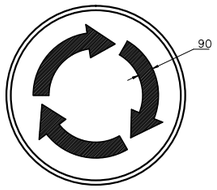
304

TURN LEFT AHEAD



305

TURN RIGHT AHEAD

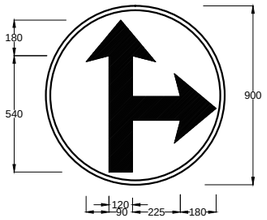


306

COMPULSORY ROUNDABOUT

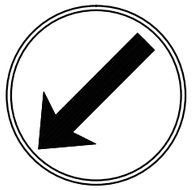
307

GO AHEAD OR LEFT ONLY



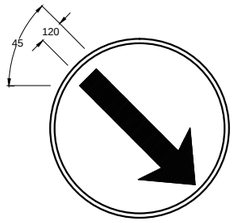
308

GO AHEAD OR RIGHT ONLY



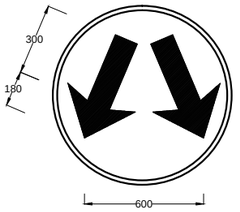
309

KEEP LEFT



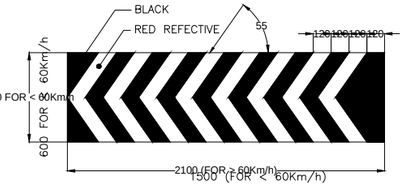
309

KEEP RIGHT



311

KEEP EITHER SIDES

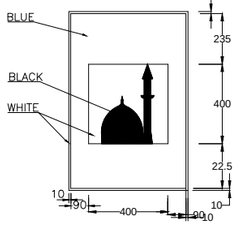


312

SHARP DEVIATION TO LEFT

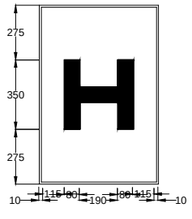
313

SHARP DEVIATION TO RIGHT



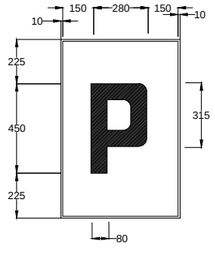
401

MOSQUE



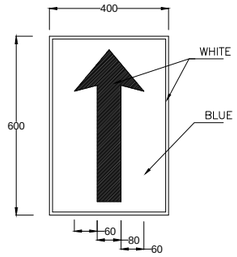
402

HOSPITAL



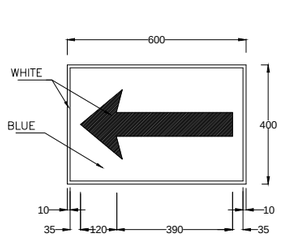
403

PARKING



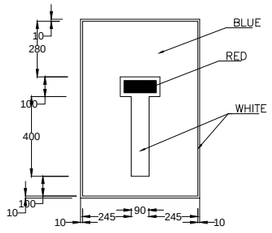
404

ONE WAY STREET



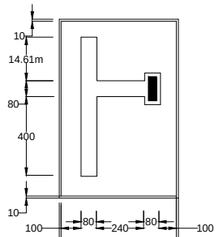
405

DIRECTION OF FACILITY



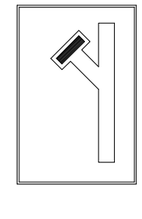
406

NO THROUGH ROAD (STRAIGHT AHEAD)



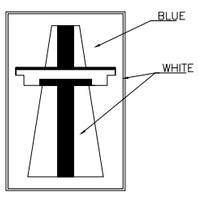
407

NO THROUGH ROAD (ON RIGHT)



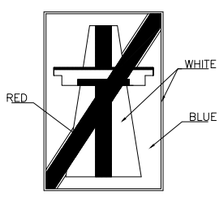
408

NO THROUGH ROAD (ON LEFT)



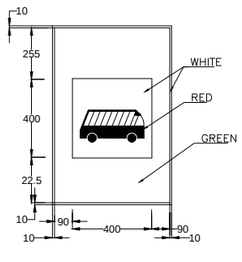
409

FREEWAY/MOTORWAY



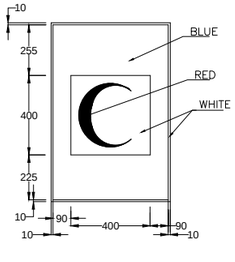
410

END FREE WAY/MOTORWAY



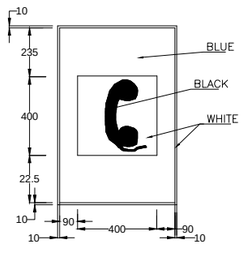
411

BUS STOP



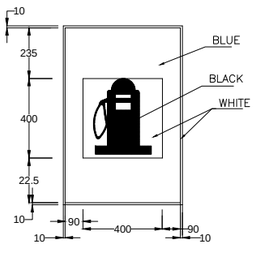
412

FIRST AID STATION



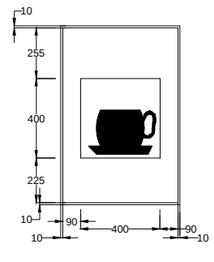
413

TELEPHONE



414

FILLING STATION



415

REFRESHMENT/CAFETERIA

416

GANTRY SIGN

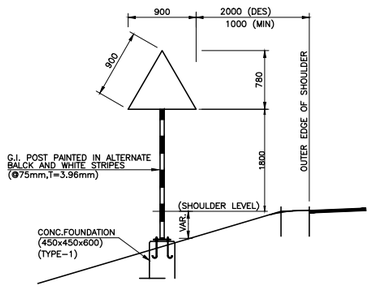
anees D:\E drive (16-09-2015)\HIGHWAY\SINDH ROADS\ZEESHAN SAHAB\GENERAL DRAWINGS\ TH-1 GEN-05B.dwg

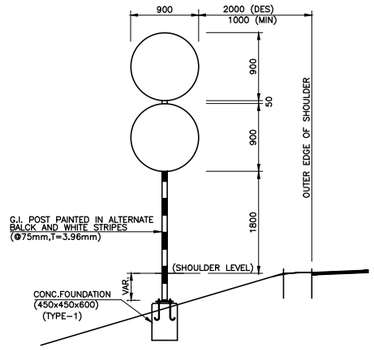
CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with	PROJECT ROAD:- TITLE:- TYPICAL ROAD SIGNS (SHEET 3 OF 3)

ED.NO.	DATE	DESCRIPTION

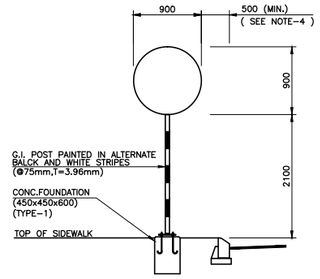
DRAWN:	N. SAQIB SIDDIQUI
DESIGNED:	HINA ZEESHAN
CHECKED:	NAVEED HASSAN
DATE:	JUNE, 2023

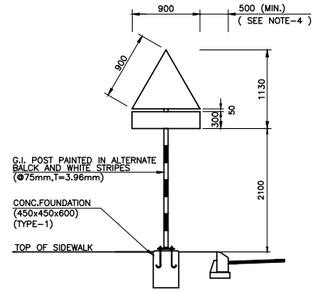
DRAWING NO.	GEN-05B
Scale:-	N.T.S.
Edition.	0



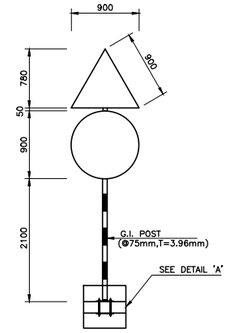


MOUNTED ALONG FILL SLOPE



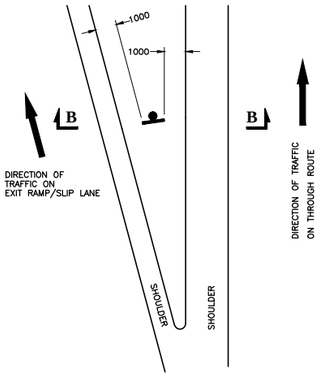


MOUNTED ALONG SIDEWALK OR ISLAND

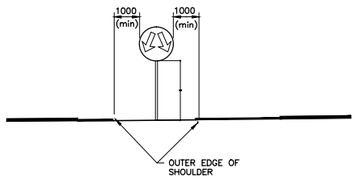


MOUNTED ON STRUCTURE

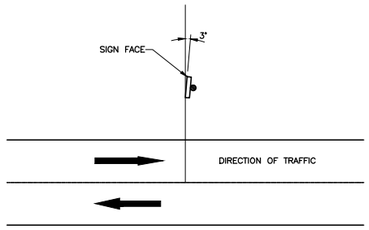
TYPICAL PLACING DETAILS OF ROAD SIGNS



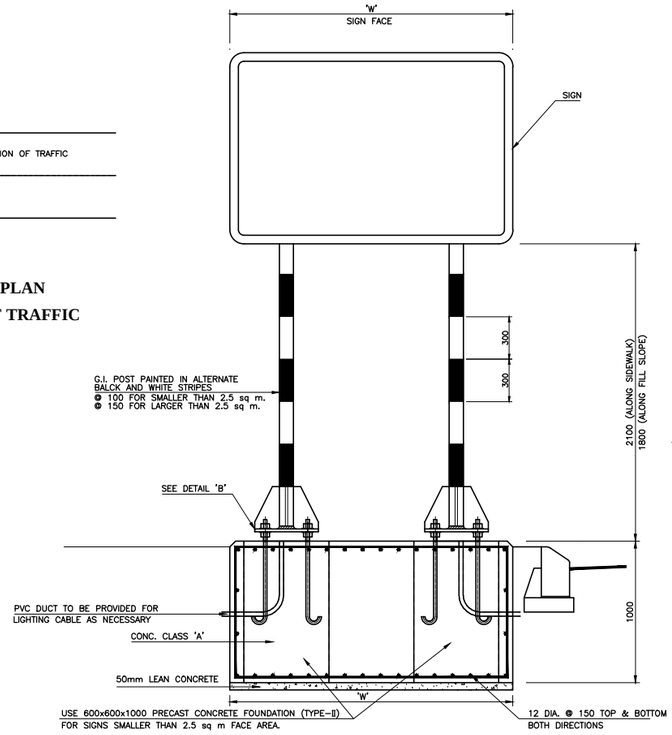
PLACING OF SIGN AT NOSE



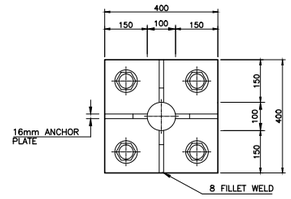
SECTION B-B



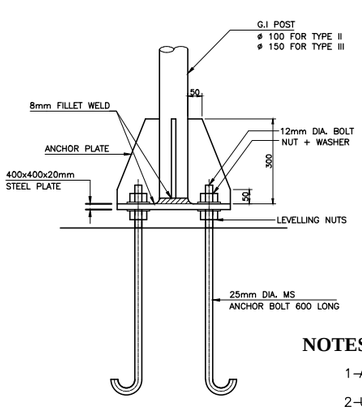
ORIENTATION OF SIGN IN PLAN
RELATED TO DIRECTION OF TRAFFIC



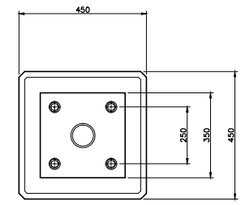
POST FOR LARGE SIGNS (> 1.5 Sq m FACE AREA)
(TYPE-II & III)
(SEE NOTE-2)



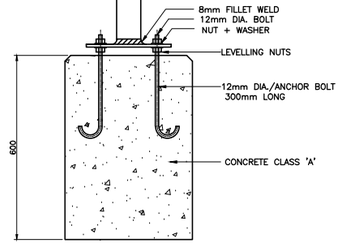
PLAN



DETAIL 'B'
(TYPE-II & III)



PLAN



PRECAST FOUNDATION DETAIL
(TYPE-1)

NOTES :-

1–ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.

2–USE DIA. 75mm G. I. POST WITH 450x450x600 FOUNDATION (TYPE–I) FOR PROHIBITIVE, MANDATORY, WARNING AND SMALL INFORMATORY SIGNS. FOR LARGE SIGNS. USE 100mm DIA. POST WITH 600x600x1000mm CONCRETE POST FOUNDATION (TYPE–II) FOR SIGNS WITH FACE AREA LARGER THAN 2.5 Sq.M. USE 150mm DIA. POST WITH INSITU REINFORCED CONCRETE FOUNDATION (TYPE–III)

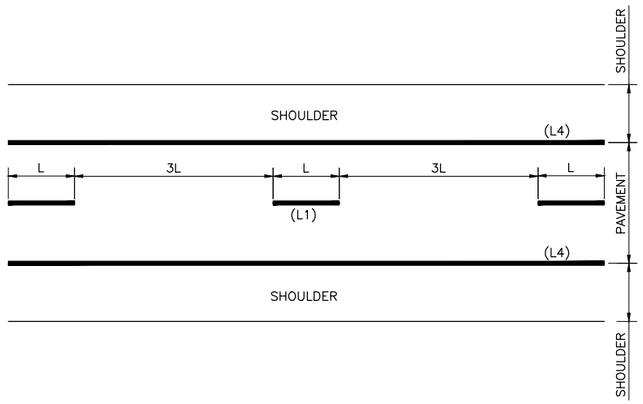
3–TWO SIGN PLATES MAX. JUL BE PLACED ON ONE POST ASSEMBLY.

4–A SIGN POST SHALL NOT BE MOUNTED IN THE MIDDLE OF SIDEWALK.

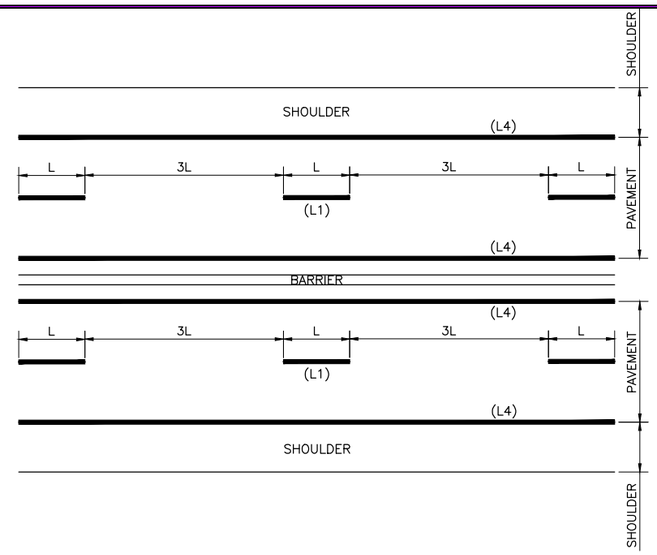
5–WIDTH OF CAST IN SITU CONCRETE FOUNDATION FOR LARGE SIGNS (TYPE–III) SHALL BE SAME AS THAT OF SIGN FACE, WHERE AS ITS BREADTH AND DEPTH SHALL BE 1.00m.

6–THE CONTRACTOR SHALL SUBMIT THE MOUNTING AND FASTENING DETAILS FOR THE ENGINEER'S APPROVAL.

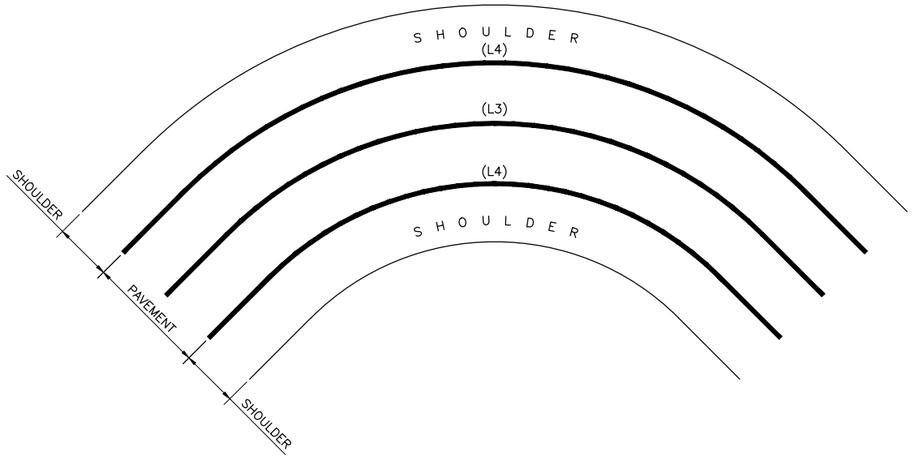
CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with AA	PROJECT ROAD:- TITLE:- TYPICAL SIGN PLACING & FOUNDATION DETAILS	ED.NO.	DATE	DESCRIPTION	DRAWN: N. SAQIB SIDDIQUI DESIGNED: HINA ZEESHAN CHECKED: NAVEED HASSAN DATE: JUNE, 2023	DRAWING NO. GEN-06 Scale:- N.T.S. Edition. 0



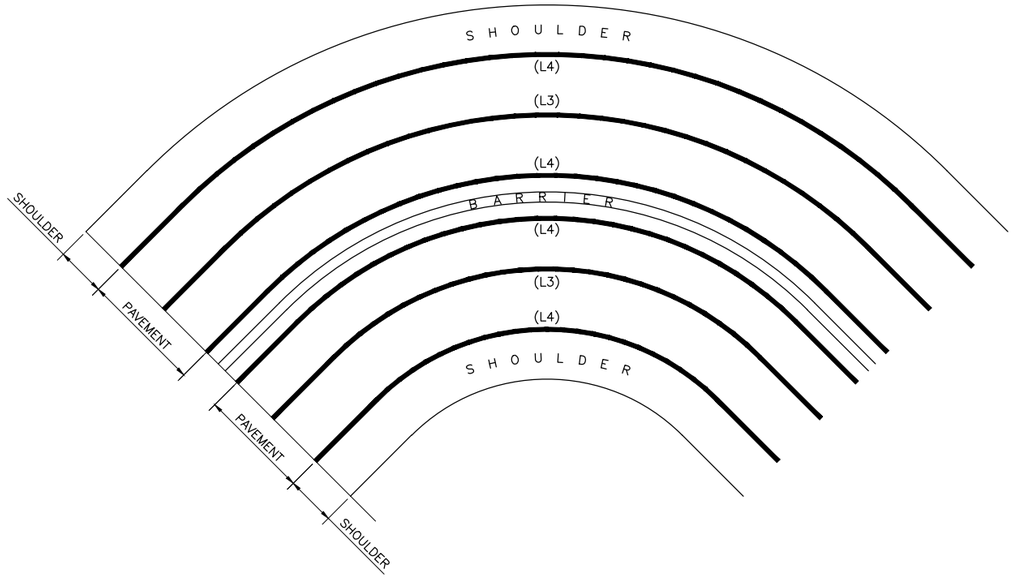
TYPICAL MARKING AT 2–LANE ROAD



TYPICAL MARKING AT 4–LANE ONE WAY ROAD



TYPICAL MARKING AT 2–LANE ROAD
ON HORIZONTAL CURVE

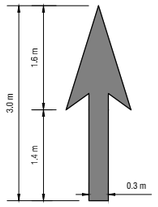


TYPICAL MARKING AT 4–LANE ONE WAY ROAD
ON HORIZONTAL CURVE

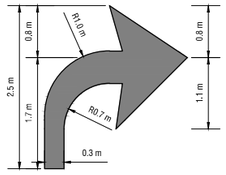
NOTES :–

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. AT HORIZONTAL CURVES CENTER LINE OR LANE SEPARATION LINE (L1) BECOMES (L3) FROM START TO END OF CURVE.

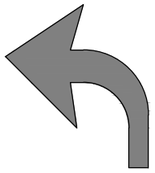
CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with AA	PROJECT ROAD:- TITLE:- TYPICAL PAVEMENT MARKING (SHEET 1 OF 3)	ED.NO. / DATE / DESCRIPTION	DRAWN: N. SAQIB SIDDIQUI DESIGNED: HINA ZEESHAN CHECKED: NAVEED HASSAN DATE: JUNE, 2023	DRAWING NO. GEN-07 Scale:- N.T.S. Edition. 0



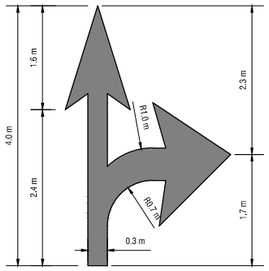
STRAIGHT ARROW



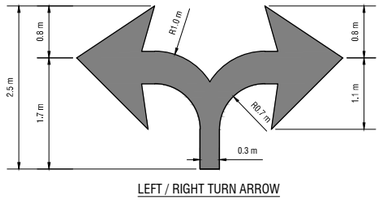
RIGHT TURN ARROW



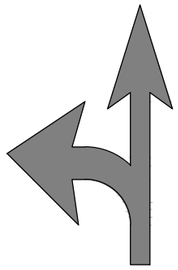
LEFT TURN ARROW



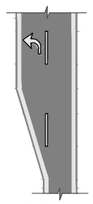
STRAIGHT / RIGHT ARROW



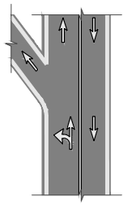
LEFT / RIGHT TURN ARROW



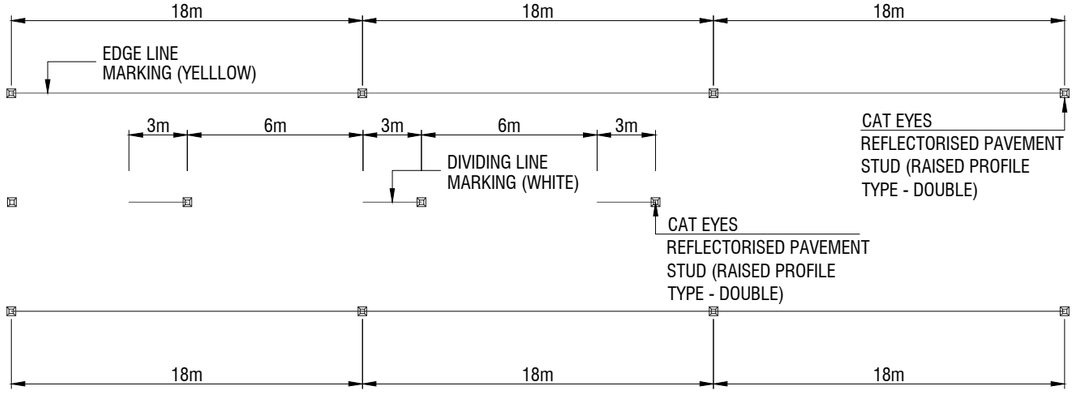
STRAIGHT / LEFT ARROW



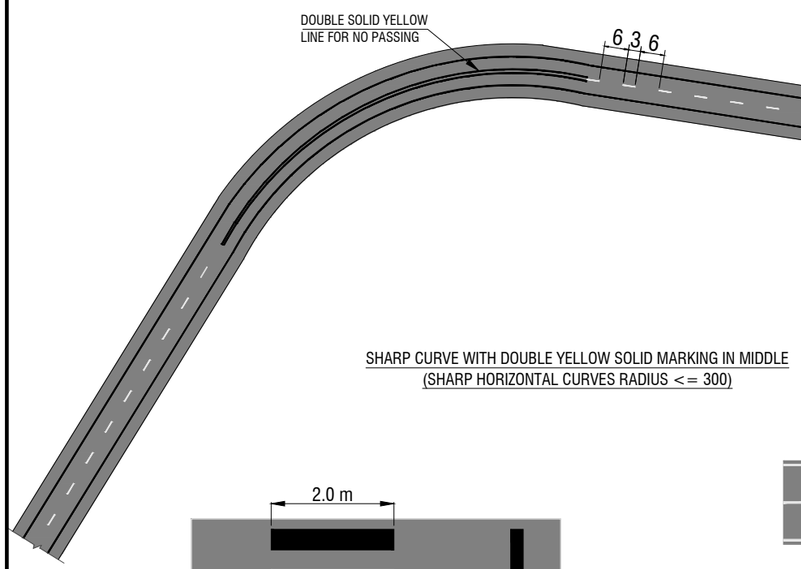
EXCLUSIVE TURN LANE



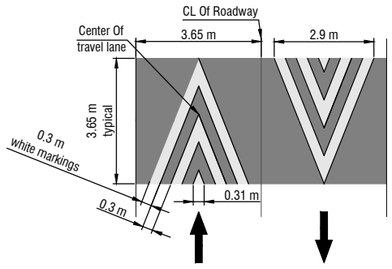
ARROW MARKINGS



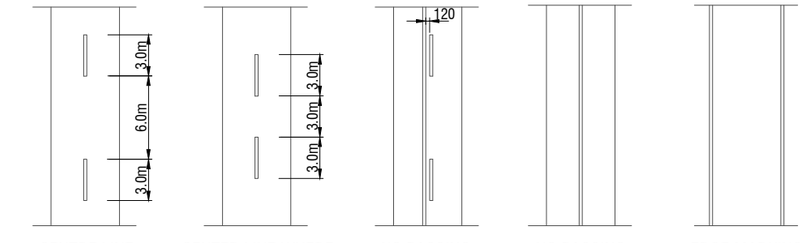
CAT EYES PLAN



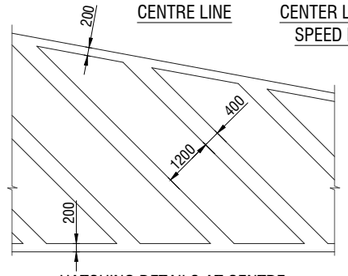
SHARP CURVE WITH DOUBLE YELLOW SOLID MARKING IN MIDDLE
(SHARP HORIZONTAL CURVES RADIUS <= 300)



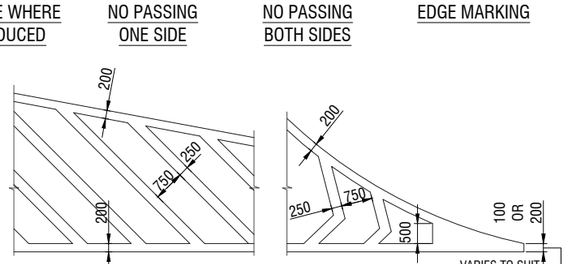
TYPICAL HUMP MARKING DETAILS
(FOR NO ZEBRA CROSSINGS)



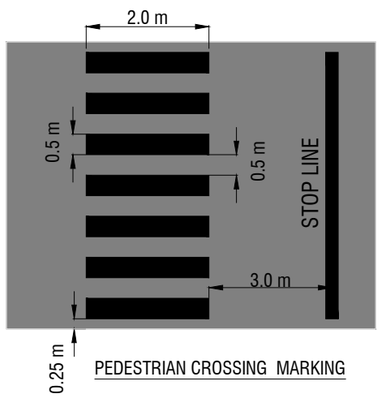
CENTRE LINE | CENTER LINE WHERE SPEED REDUCED | NO PASSING ONE SIDE | NO PASSING BOTH SIDES | EDGE MARKING



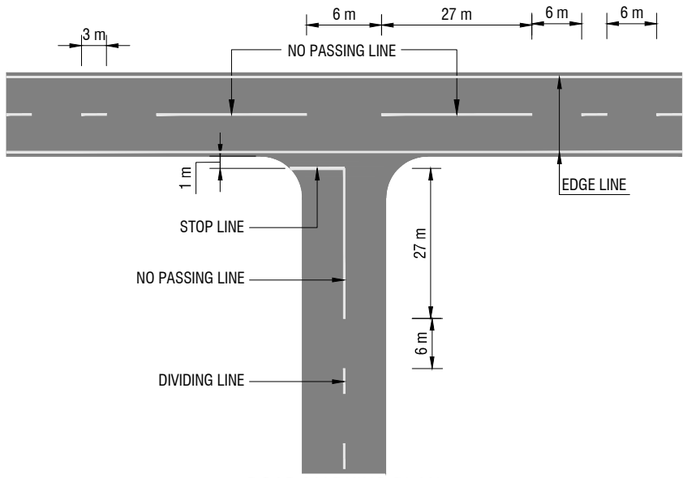
HATCHING DETAILS AT CENTRE
OF CARRIAGEWAY



HATCHING DETAIL AT JUNCTION ISLANDS



PEDESTRIAN CROSSING MARKING

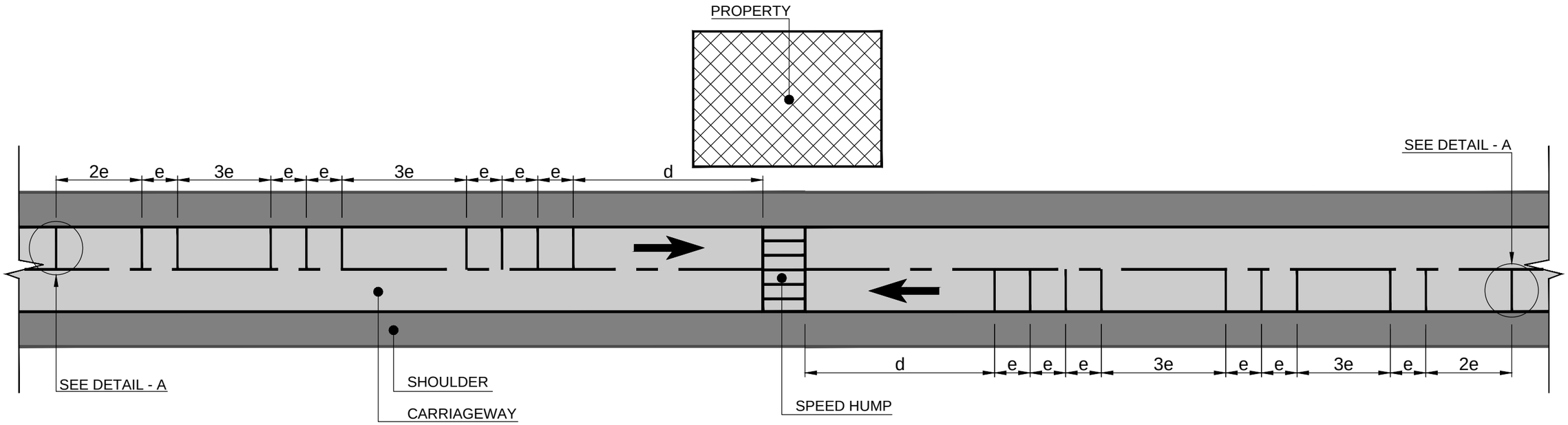


ROAD MARKING PLAN

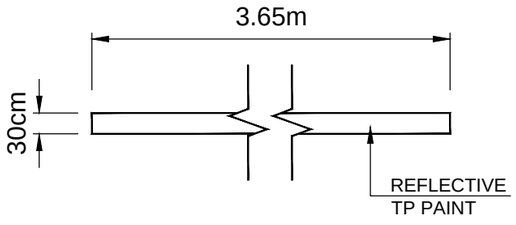
NOTE:

1. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE MENTIONED.

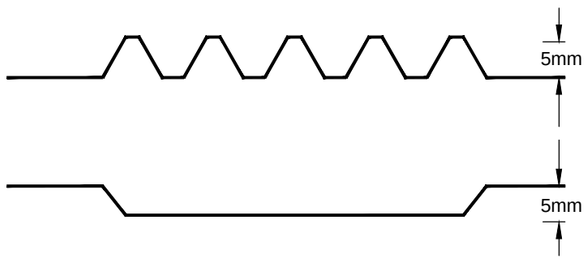
CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with AA	PROJECT ROAD:- TITLE:- PAVEMENT MARKING AND CAT EYES DETAILS	ED.NO.	DATE	DESCRIPTION	DRAWN: N. SAQIB SIDDIQUI DESIGNED: HINA ZEESHAN CHECKED: NAVEED HASSAN DATE: JUNE, 2023	DRAWING NO. GEN-07A Scale:- N.T.S. Edition. 0



PLAN OF TRANSVERSE RUMBLE STRIPS



PLAN OF RUMBLE STRIP

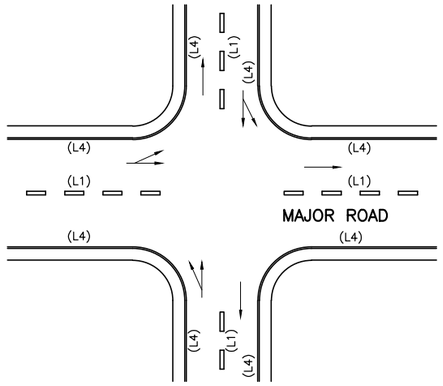


RUMBLE STRIP CROSS SECTION
DETAIL - A

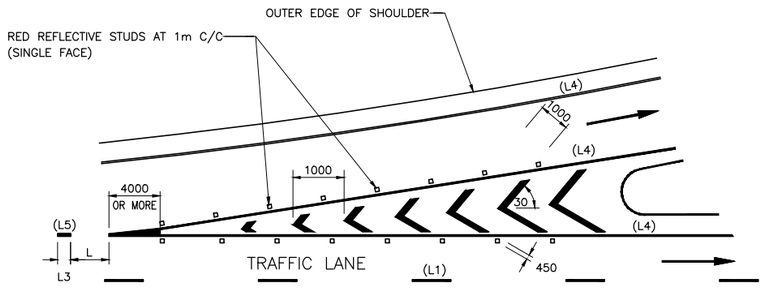
NOTES:-

1 - ALL DIMENSIONS ARE IN MILLIMETERS, EXCEPT OTHERWISE MENTIONED.
2 - SPEED HUMPS/RUMBLE STRIPS WILL BE PROVIDED NEAR AMENITIES SUCH AS MOSQUES, PLAYGROUNDS, SCHOOLS, HOSPITALS, ETC, FOR TRAFFIC CALMING AS PER DECISION OF THE ENGINEER.

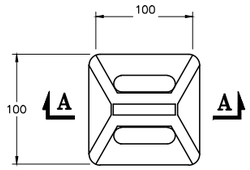
CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with	PROJECT ROAD:- TITLE:- RUMBLE STRIP DETAILS	ED.NO. / DATE / DESCRIPTION			DRAWN: N. SAQIB SIDDIQUI DESIGNED: HINA ZEESHAN CHECKED: NAVEED HASSAN DATE: JUNE, 2023	DRAWING NO. GEN-07B Scale:- N.T.S. Edition. 0



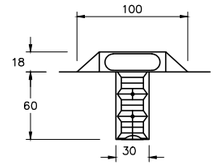
TYPICAL LANE MARKING FOR INTERSECTION



EXIT NOSE DETAIL



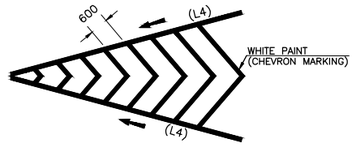
PLAN



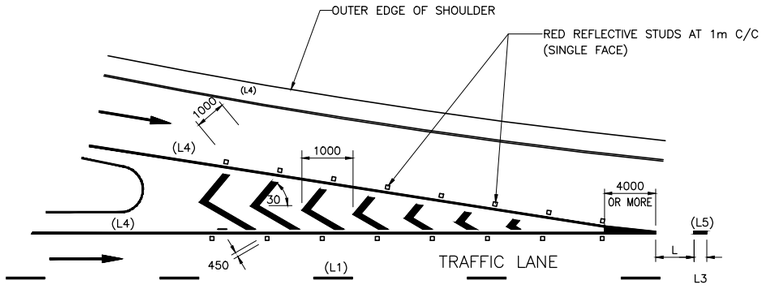
SECTION A–A

REFLECTORISED PAVEMENT STUD (RAISED PROFILE TYPE)

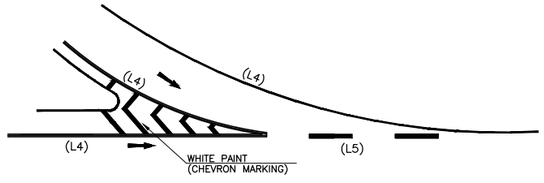
SCALE NTS



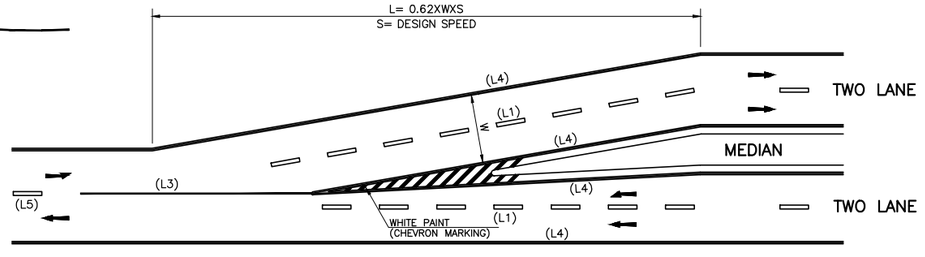
TYPICAL ISLAND APPROACH/EXIT DETAILS



ENTRANCE NOSE DETAIL

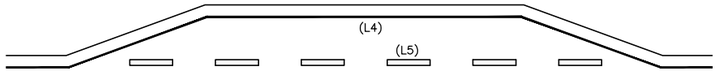


EXCLUSIVE TURN LANE



REFER PAGE 3–134 OF AASHTO 2011

PAVEMENT REDUCTION MARKING

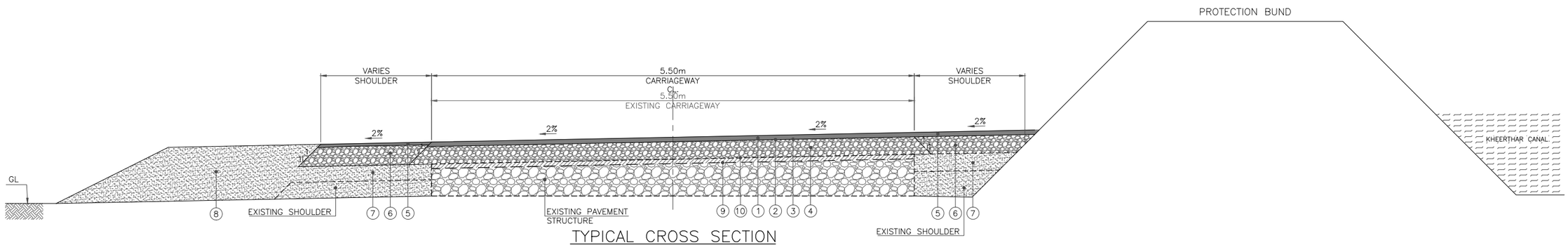


BUS – LANE

NOTES:

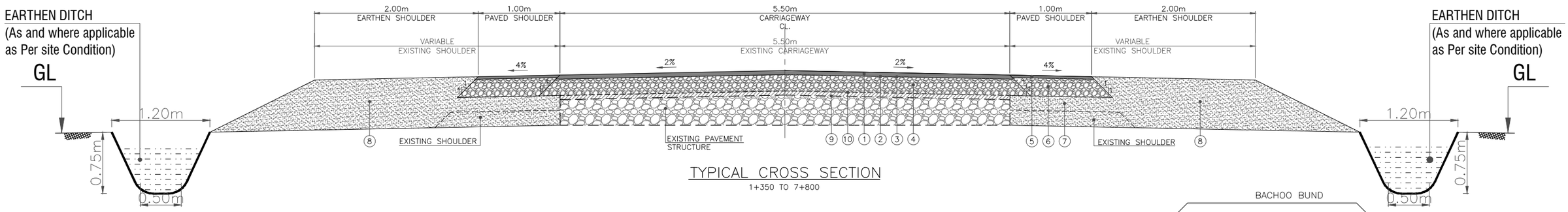
1) THE MATERIAL TO BE USED FOR CARRIAGEWAY MARKINGS SHALL BE OF APPROVED TYPE AND QUALITY.
2) PROPER VISIBILITY OF ALL SIGNS & MARKINGS AT ALL TIMES DURING THE DAY AND NIGHT SHALL BE ENSURED.
3) ROAD STUDS SHALL ALSO BE PROVIDED AT INTERSECTIONS AS SHOWN ON PLANS AND AS DIRECTED BY THE ENGINEER.

CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with AA	PROJECT ROAD:- TITLE:- DETAILS OF MERGING/DIVERGING	ED.NO.	DATE	DESCRIPTION	DRAWN: N. SAQIB SIDDIQUI DESIGNED: HINA ZEESHAN CHECKED: NAVEED HASSAN DATE: JUNE, 2023	DRAWING NO. GEN-08 Scale:- N.T.S. Edition. 0



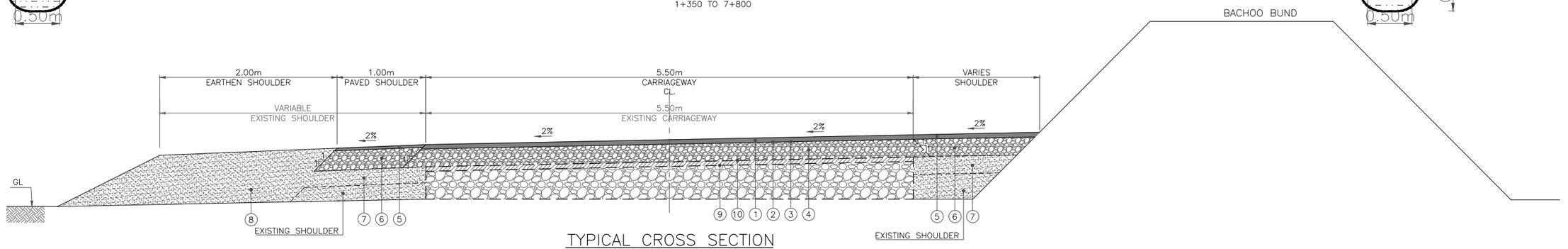
TYPICAL CROSS SECTION

0+000 TO 1+350



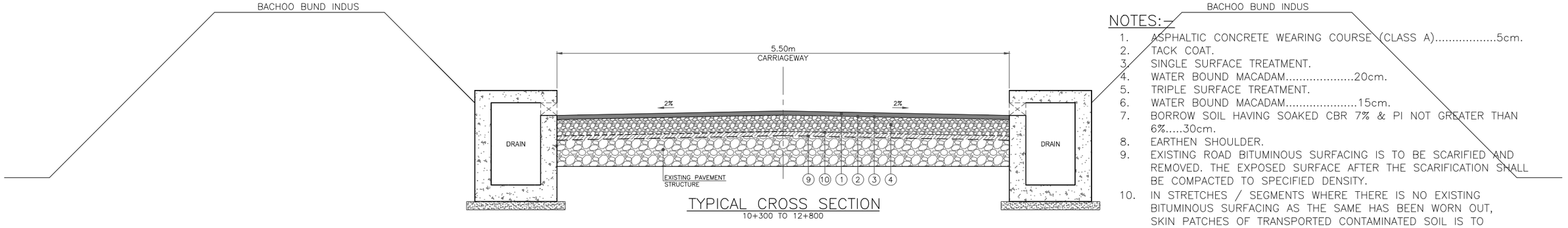
TYPICAL CROSS SECTION

1+350 TO 7+800



TYPICAL CROSS SECTION

7+800 TO 10+300



TYPICAL CROSS SECTION

10+300 TO 12+800

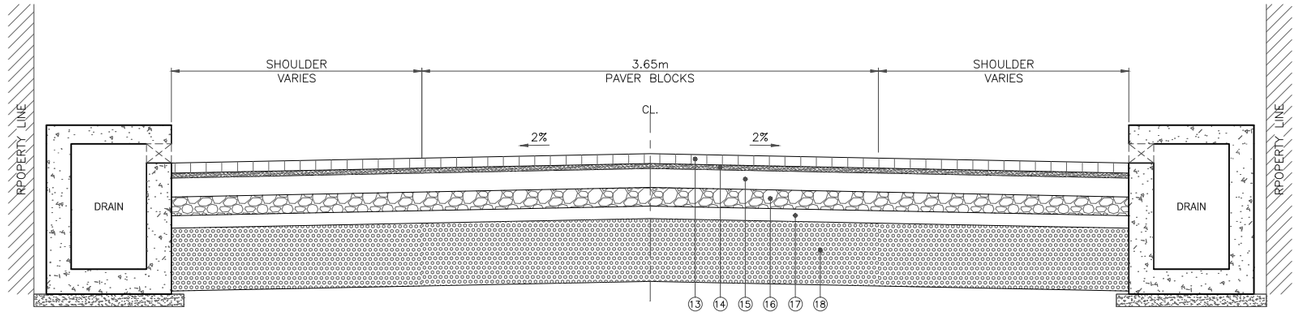
NOTES:-

1. ASPHALTIC CONCRETE WEARING COURSE (CLASS A).....5cm.
2. TACK COAT.
3. SINGLE SURFACE TREATMENT.
4. WATER BOUND MACADAM.....20cm.
5. TRIPLE SURFACE TREATMENT.
6. WATER BOUND MACADAM.....15cm.
7. BORROW SOIL HAVING SOAKED CBR 7% & PI NOT GREATER THAN 6%....30cm.
8. EARTHEN SHOULDER.
9. EXISTING ROAD BITUMINOUS SURFACING IS TO BE SCARIFIED AND REMOVED. THE EXPOSED SURFACE AFTER THE SCARIFICATION SHALL BE COMPACTED TO SPECIFIED DENSITY.
10. IN STRETCHES / SEGMENTS WHERE THERE IS NO EXISTING BITUMINOUS SURFACING AS THE SAME HAS BEEN WORN OUT, SKIN PATCHES OF TRANSPORTED CONTAMINATED SOIL IS TO REMOVED FROM SURFACE AND COMPACTED TO SPECIFIED DENSITY.
11. BOULDERS
12. ALL DIMENSIONS ARE IN METERS EXCEPT OTHER WISE MENTIONED.

* REMOVAL OF BRICK EDGING SHALL BE CARRIED OUT AND PAID IN SHOULDER EXCAVATION

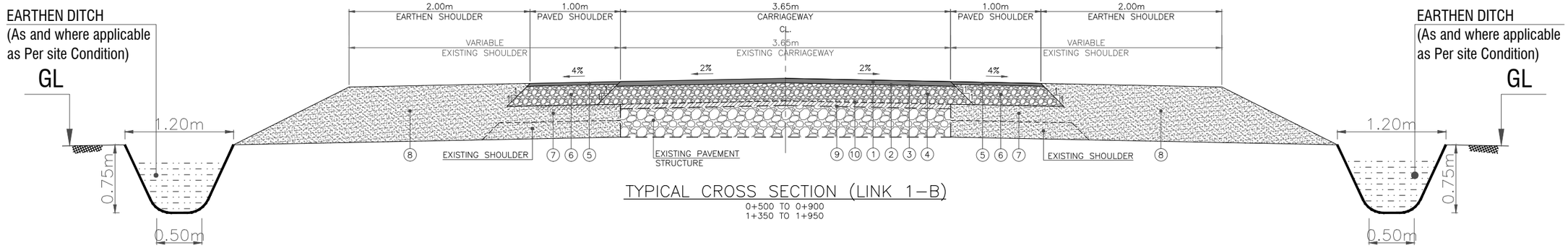
Faizan E:\000_Nomn Work_2018-07-04\Projects\Local\EFAP ADB\CROSS SECTION\16_SHIKARPUR\FROM AA\2023-08-05\ SH-1 GEN-09.dwg

CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with AA	PROJECT ROAD:- **SH - 1** Rehablitation of road from Sukkur Larkana Road @ Kheerthar Canal to Jhali Kalwari TITLE:- TYPICAL CROSS SECTIONS REHABILITATION (5.5m)	ED.NO.	DATE	DESCRIPTION	DRAWN: M. NOMAN SIDDIQUI DESIGNED: ANDLEEB CHECKED: BUX ALI ABRO DATE: JULY, 2023	DRAWING NO. SH-1 GEN-09 Scale:- 1:25 (A1) 1:50 (A3) Edition. 0



TYPICAL CROSS SECTION (LINK 1–B)

0+000 TO 0+500
0+900 TO 1+350
1+950 TO 2+375



TYPICAL CROSS SECTION (LINK 1–B)

0+500 TO 0+900
1+350 TO 1+950

NOTES:–

1. ASPHALTIC CONCRETE WEARING COURSE (CLASS A).....5cm.
2. TACK COAT.
3. SINGLE SURFACE TREATMENT.
4. WATER BOUND MACADAM.....20cm.
5. TRIPLE SURFACE TREATMENT.
6. WATER BOUND MACADAM.....15cm.
7. BORROW SOIL HAVING SOAKED CBR 7% & PI NOT GREATER THAN 6%.....30cm.
8. EARTHEN SHOULDER.
9. EXISTING ROAD BITUMINOUS SURFACING IS TO BE SCARIFIED AND REMOVED. THE EXPOSED SURFACE AFTER THE SCARIFICATION SHALL BE COMPACTED TO SPECIFIED DENSITY.
10. IN STRETCHES / SEGMENTS WHERE THERE IS NO EXISTING BITUMINOUS SURFACING AS THE SAME HAS BEEN WORN OUT,SKIN PATCHES OF TRANSPORTED CONTAMINATED SOIL IS TO REMOVED FROM SURFACE AND COMPACTED TO SPECIFIED DENSITY.
11. BOULDERS
12. ALL DIMENSIONS ARE IN METERS EXCEPT OTHER WISE MENTIONED.

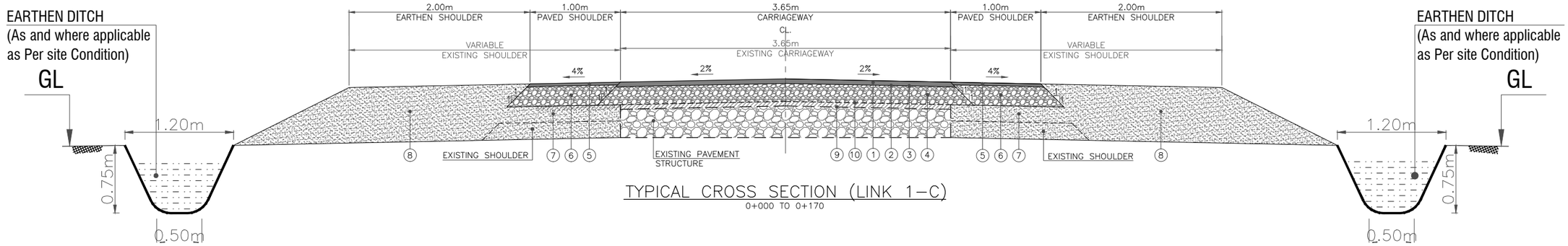
* REMOVAL OF BRICK EDGING SHALL BE CARRIED OUT AND PAID IN SHOULDER EXCAVATION

NOTES FOR PAVER SECTION:–

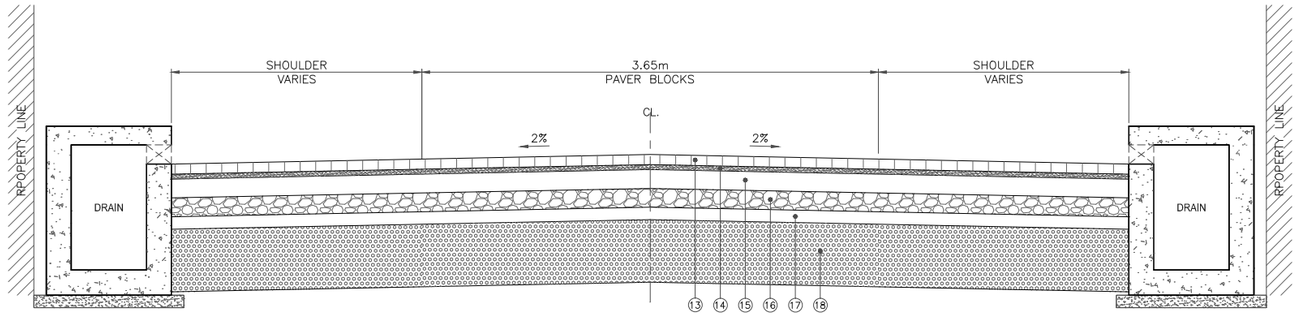
13. PAVER BLOCKS.....8cm.
14. SAND CUSHION.....4cm.
15. CONCRETE CLASS B.....15cm.
16. WATER BOUND MACADAM.....15cm.
17. GRANULAR SUB BASE.....10cm.
18. BORROW SOIL.....50cm.
19. THE EXCAVATION LIMIT LINE SHALL BE 105cm FROM FINISHED ROAD LEVEL (PFRL) TO ACCOMMODATE NEW PAVEMENT STRUCTURE INCLUDING 50cm SUB GRADE. THE EXCAVATED MATERIAL, IF FOUND SUITABLE IS TO BE REUSED IN EMBANKMENT CONSTRUCTION AS DIRECTED BY THE ENGINEER

Faizan E:\000_Nomn Work_2018-07-04\Projects\Local\EFAP ADB\CROSS SECTION\16_SHIKARPUR\FROM AA\2023-08-05\ SH-1 GEN-10.dwg

CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with AA	PROJECT ROAD:- **SH - 1** Rehablitation of road from Sukkur Larkana Road @ Kheerthar Canal to Jhali Kalwari TITLE:- TYPICAL CROSS SECTION (LINK 1-B) REHABILITATION (3.65m)	ED.NO. / DATE / DESCRIPTION	DRAWN: M. NOMAN SIDDIQUI DESIGNED: ANDLEEB CHECKED: BUX ALI ABRO DATE: JULY, 2023	DRAWING NO. SH-1 GEN-10 Scale:- 1:25 (A1) 1:50 (A3) Edition. 0



TYPICAL CROSS SECTION (LINK 1–C)
0+000 TO 0+170



TYPICAL CROSS SECTION (LINK 1–C)
0+170 TO 0+275

NOTES:–

1. ASPHALTIC CONCRETE WEARING COURSE (CLASS A).....5cm.
2. TACK COAT.
3. SINGLE SURFACE TREATMENT.
4. WATER BOUND MACADAM.....20cm.
5. TRIPLE SURFACE TREATMENT.
6. WATER BOUND MACADAM.....15cm.
7. BORROW SOIL HAVING SOAKED CBR 7% & PI NOT GREATER THAN 6%.....30cm.
8. EARTHEN SHOULDER.
9. EXISTING ROAD BITUMINOUS SURFACING IS TO BE SCARIFIED AND REMOVED. THE EXPOSED SURFACE AFTER THE SCARIFICATION SHALL BE COMPACTED TO SPECIFIED DENSITY.
10. IN STRETCHES / SEGMENTS WHERE THERE IS NO EXISTING BITUMINOUS SURFACING AS THE SAME HAS BEEN WORN OUT,SKIN PATCHES OF TRANSPORTED CONTAMINATED SOIL IS TO REMOVED FROM SURFACE AND COMPACTED TO SPECIFIED DENSITY.
11. BOULDERS
12. ALL DIMENSIONS ARE IN METERS EXCEPT OTHER WISE MENTIONED.

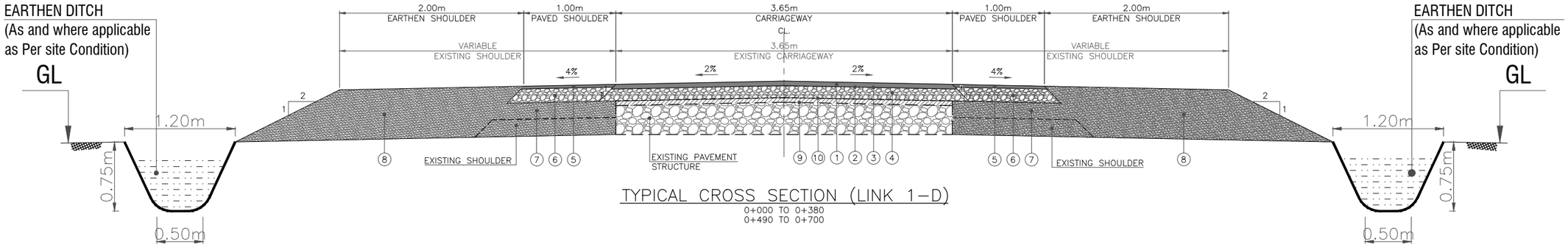
* REMOVAL OF BRICK EDGING SHALL BE CARRIED OUT AND PAID IN SHOULDER EXCAVATION

NOTES FOR PAVER SECTION:–

13. PAVER BLOCKS.....8cm.
14. SAND CUSHION.....4cm.
15. CONCRETE CLASS B.....15cm.
16. WATER BOUND MACADAM.....15cm.
17. GRANULAR SUB BASE.....10cm.
18. BORROW SOIL.....50cm.
19. THE EXCAVATION LIMIT LINE SHALL BE 105cm FROM FINISHED ROAD LEVEL (PFRL) TO ACCOMMODATE NEW PAVEMENT STRUCTURE INCLUDING 50cm SUB GRADE. THE EXCAVATED MATERIAL, IF FOUND SUITABLE IS TO BE REUSED IN EMBANKMENT CONSTRUCTION AS DIRECTED BY THE ENGINEER

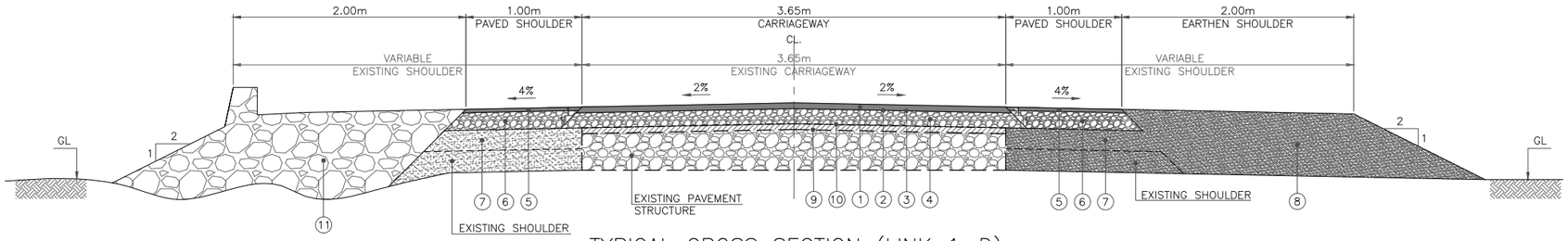
Faizan E:\000_Nomn Work_2018-07-04\Projects\Local\EFAP ADB\CROSS SECTION\16_SHIKARPUR\FROM AA\2023-08-05\ SH-1 GEN-11.dwg

CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with AA	PROJECT ROAD:- **SH - 1** Rehablitation of road from Sukkur Larkana Road @ Kheerthar Canal to Jhali Kalwari TITLE:- TYPICAL CROSS SECTION (LINK 1-C) REHABILITATION (3.65m)	ED.NO. / DATE / DESCRIPTION	DRAWN: M. NOMAN SIDDIQUI DESIGNED: ANDLEEB CHECKED: BUX ALI ABRO DATE: JULY, 2023	DRAWING NO. SH-1 GEN-11 Scale:- 1:25 (A1) 1:50 (A3) Edition. 0



TYPICAL CROSS SECTION (LINK 1–D)

0+000 TO 0+380
0+490 TO 0+700



TYPICAL CROSS SECTION (LINK 1–D)

0+380 TO 0+490

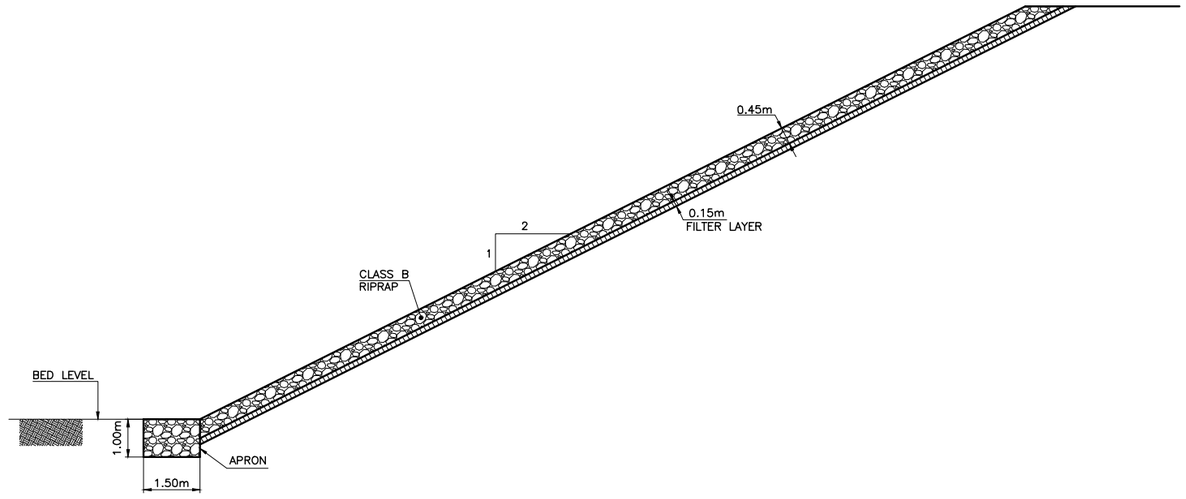
NOTES:–

1. ASPHALTIC CONCRETE WEARING COURSE (CLASS A).....5cm.
2. TACK COAT.
3. SINGLE SURFACE TREATMENT.
4. WATER BOUND MACADAM.....20cm.
5. TRIPLE SURFACE TREATMENT.
6. WATER BOUND MACADAM.....15cm.
7. BORROW SOIL HAVING SOAKED CBR 7% & PI NOT GREATER THAN 6%.....30cm.
8. EARTHEN SHOULDER.
9. EXISTING ROAD BITUMINOUS SURFACING IS TO BE SCARIFIED AND REMOVED. THE EXPOSED SURFACE AFTER THE SCARIFICATION SHALL BE COMPACTED TO SPECIFIED DENSITY.
10. IN STRETCHES / SEGMENTS WHERE THERE IS NO EXISTING BITUMINOUS SURFACING AS THE SAME HAS BEEN WORN OUT,SKIN PATCHES OF TRANSPORTED CONTAMINATED SOIL IS TO REMOVED FROM SURFACE AND COMPACTED TO SPECIFIED DENSITY.
11. BOULDERS
12. ALL DIMENSIONS ARE IN METERS EXCEPT OTHER WISE MENTIONED.

* REMOVAL OF BRICK EDGING SHALL BE CARRIED OUT AND PAID IN SHOULDER EXCAVATION

Faizan E:\000_Nomn Work_2018-07-04\Projects\Local\EFAP ADB\CROSS SECTION\16_SHIKARPUR\FROM AA\2023-08-05\ SH-1 GEN-12.dwg

CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with AA	PROJECT ROAD:- **SH - 1** Rehablitation of road from Sukkur Larkana Road @ Kheerthar Canal to Jhali Kalwari TITLE:- TYPICAL CROSS SECTION (LINK 1-D) REHABILITATION (3.65m)	ED.NO.	DATE	DESCRIPTION	DRAWN: M. NOMAN SIDDIQUI DESIGNED: ANDLEEB CHECKED: BUX ALI ABRO DATE: JULY, 2023	DRAWING NO. SH-1 GEN-12 Scale:- 1:25 (A1) 1:50 (A3) Edition. 0



NOTES :-

1. PROTECTION WORK SHALL BE APPLICABLE ON REACHES WHICH WILL BE IDENTIFIED IN THE HYDROLOGY REPORT AND AROUND ENTRY AND EXIT OF CULVERT/BRIDGES.
2. ALL DIMENSIONS ARE IN METERS EXCEPT OTHERWISE MENTIONED.

TENTATIVE SCHEDULE			
FROM	TO	SIDE	REMARKS
00	1+350	LEFT	-
1+550	1+800	LEFT	-
3+575	3+750	BOTH SIDES	-
3+750	4+000	LEFT	-
4+000	4+325	BOTH SIDES	-
4+325	4+700	RIGHT	-
9+500	9+750	LEFT	-

anees D:\E drive (16-09-2015)\HIGHWAY\SINDH ROADS\ZEESHAN SAHAB\SHIKARPUR-SH-1\ PW-SH-1.dwg

CLIENT:- ADB Asian Development Bank

EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH

PROJECT:- LOAN NO. 4279 (COL): EMERGENCY FLOOD ASSISTANT PROJECT (EFAP)

DESIGN CONSULTANT: ECIL In association with MM

PROJECT ROAD:- **SH - 1**
Rehablitation of road from Sukkur Larkana Road @ Kherthar Canal to Jhali Kalwari

TITLE:- PROTECTION WORK SCHEDULE

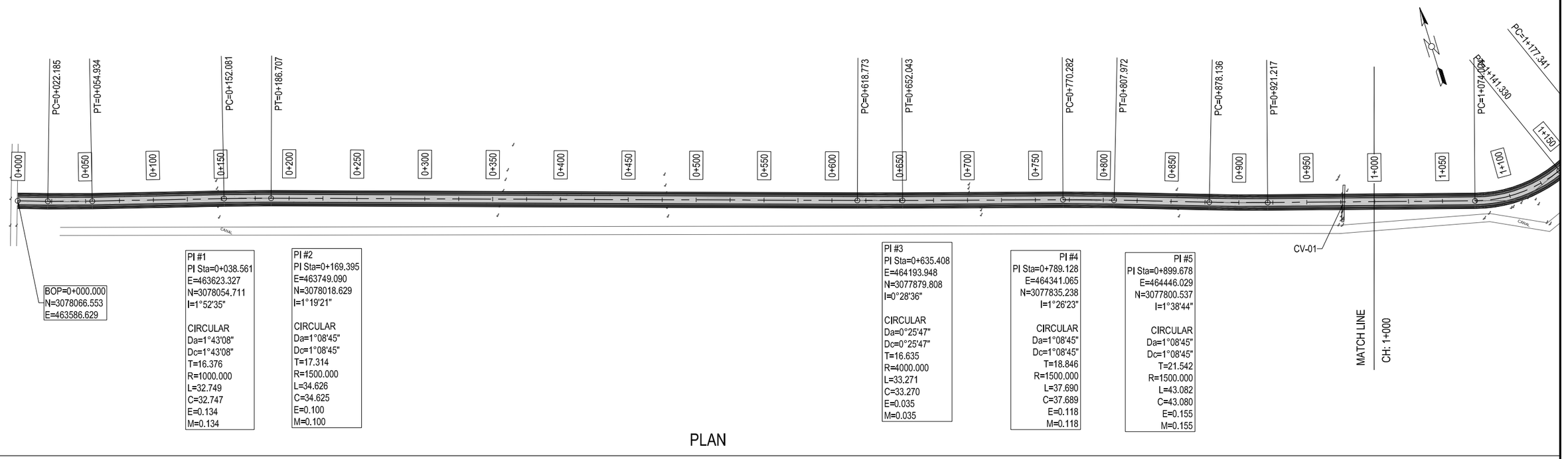
ED. NO.	DATE:-	DESCRIPTION

DRAWN: N.S.SIDDIQUI
DESIGN: HINA ZEESHAN
CHECKED: MEHMOOD
DATE: JUNE, 2023

DRAWING NO. PW-SH-1
Scale:- N.T.S.
Edition:- 0

PLAN & PROFILE DRAWINGS

(SH-01)



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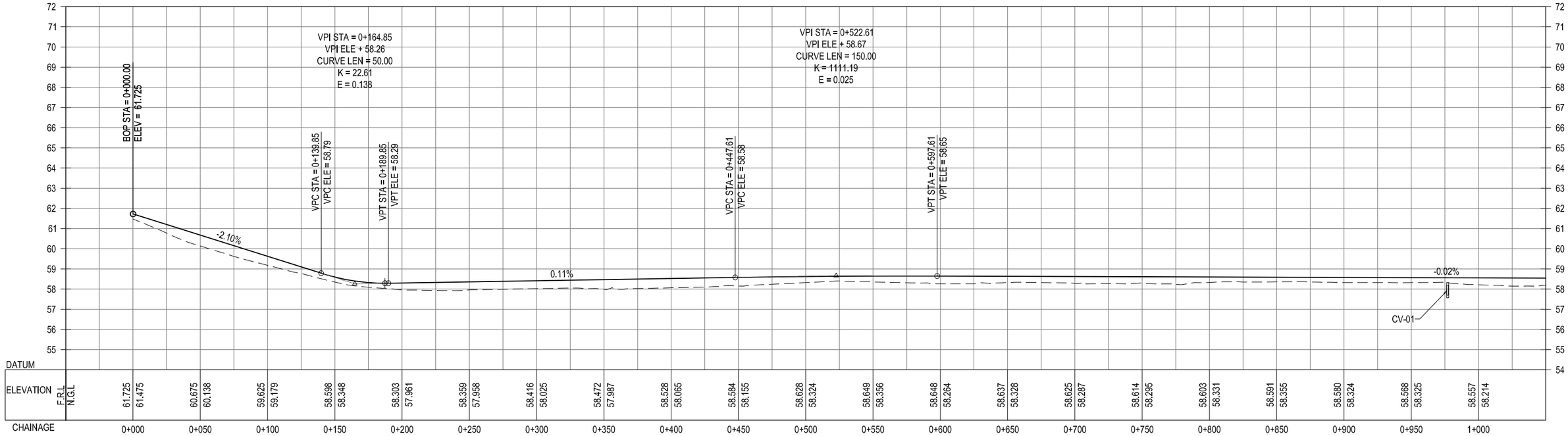

PROFILE

Tue, 25 Jul 2023 - 12:12pm
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CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with AA	PROJECT ROAD:- SH-01 REHABLITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI TITLE:- PLAN & PROFILE OF SH-01 CH: 0+000 TO 1+000	ED.NO.	DATE	DESCRIPTION	DRAWN: JUNAID DESIGNED: HINA ZEESHAN CHECKED: MEHMOOD DATE: JULY, 2023
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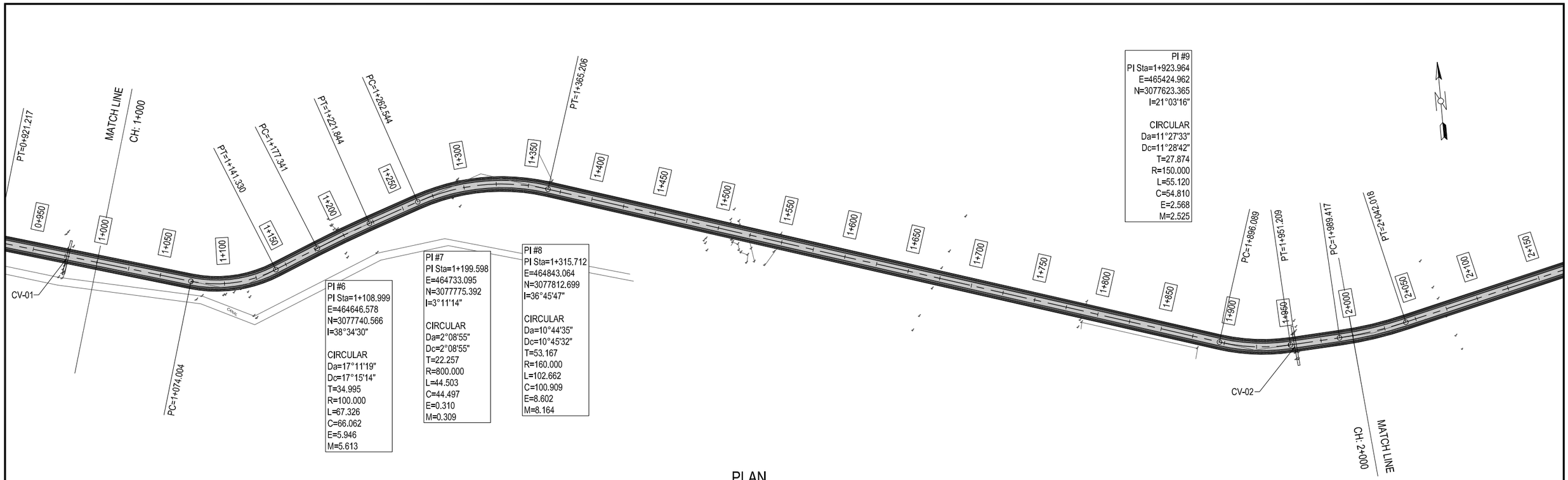
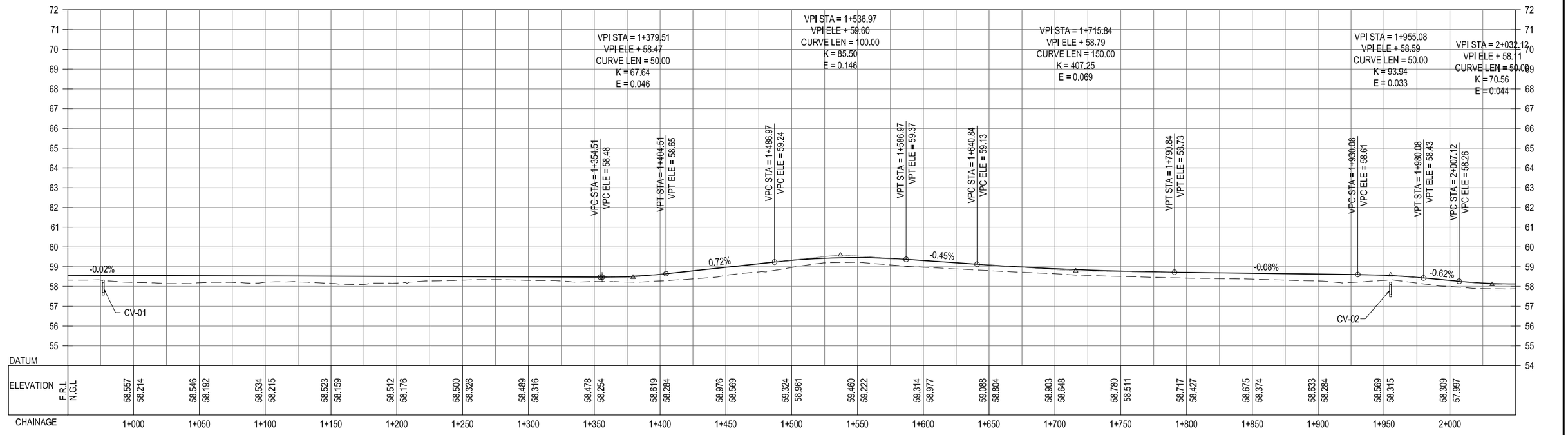
DRAWING NO. HWY-SH01-PP-01
Scale:- H=1:2000 V=1:20
Edition. 0



PLAN



PROFILE

Tue, 25 Jul 2023 - 12:36pm
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CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with AA	PROJECT ROAD:- SH-01 REHABLITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI TITLE:- PLAN & PROFILE OF SH-01 CH: 1+000 TO 2+000	ED.NO.	DATE	DESCRIPTION	DRAWN: JUNAID DESIGNED: HINA ZEESHAN CHECKED: MEHMOOD DATE: JULY, 2023
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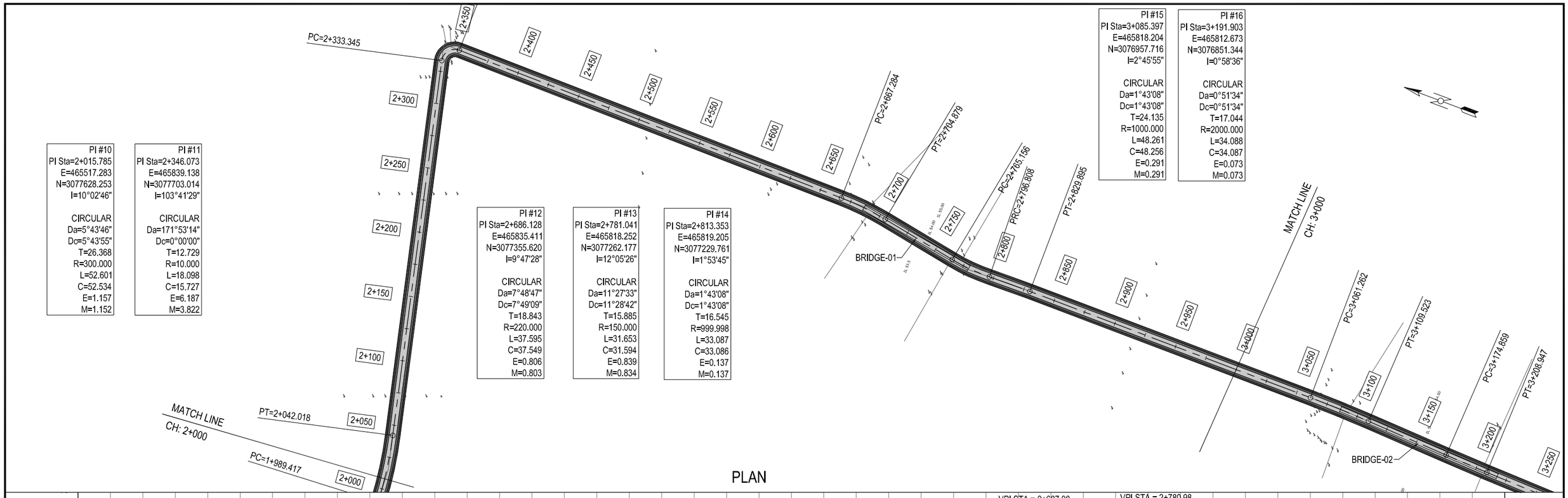

PROFILE

Tue, 25 Jul 2023 - 3:32pm
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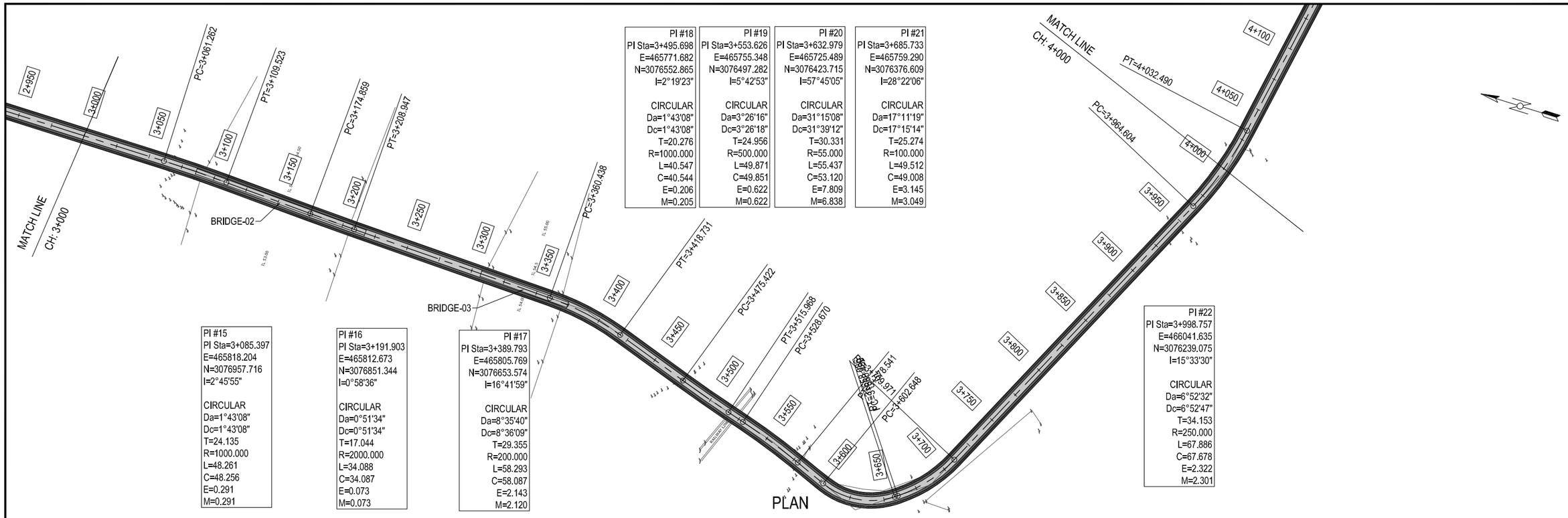
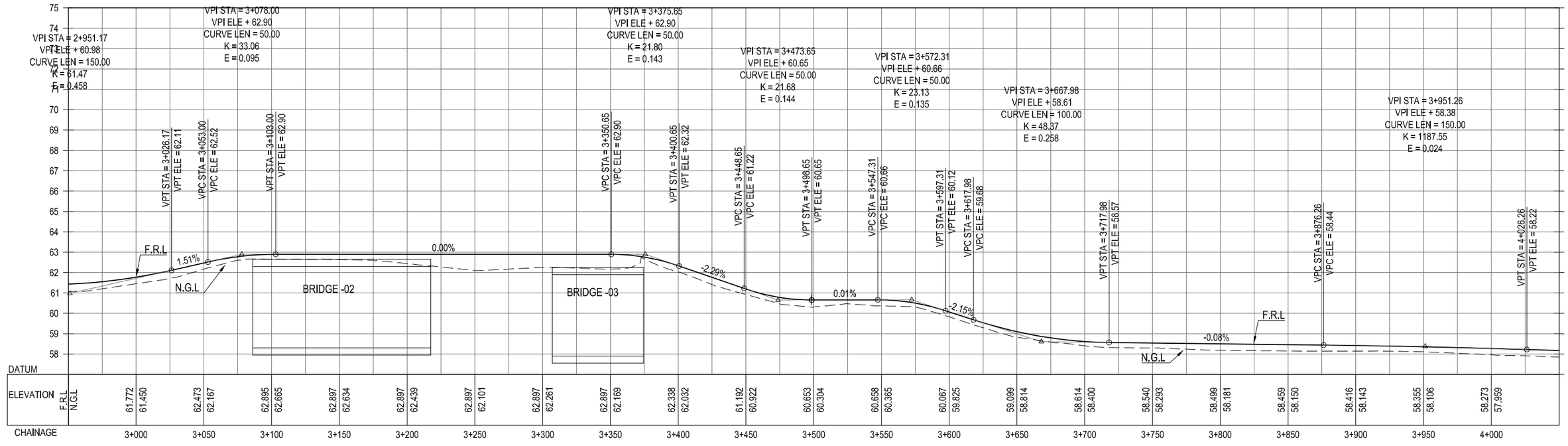
CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with AA	PROJECT ROAD:- SH-01 REHABLITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI TITLE:- PLAN & PROFILE OF SH-01 CH: 2+000 TO 3+000	ED.NO. / DATE / DESCRIPTION 0 JULY,2023 ISSUED FOR APPROVAL	DRAWN: JUNAID DESIGNED: HINA ZEESHAN CHECKED: MEHMOOD DATE: JULY, 2023	DRAWING NO. HWY-SH01-PP-03 Scale:- H=1:2000 V=1:20 Edition. 0





PROFILE

CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with AA	PROJECT ROAD:- SH-01 REHABLITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI TITLE:- PLAN & PROFILE OF SH-01 CH: 3+000 TO 4+000	ED.NO. / DATE / DESCRIPTION 0 / JULY,2023 / ISSUED FOR APPROVAL	DRAWN: JUNAID DESIGNED: HINA ZEESHAN CHECKED: MEHMOOD DATE: JULY, 2023	DRAWING NO. HWY-SH01-PP-04 Scale:- H=1:2000 V=1:20 Edition. 0

Tue, 25 Jul 2023 – 4:07pm
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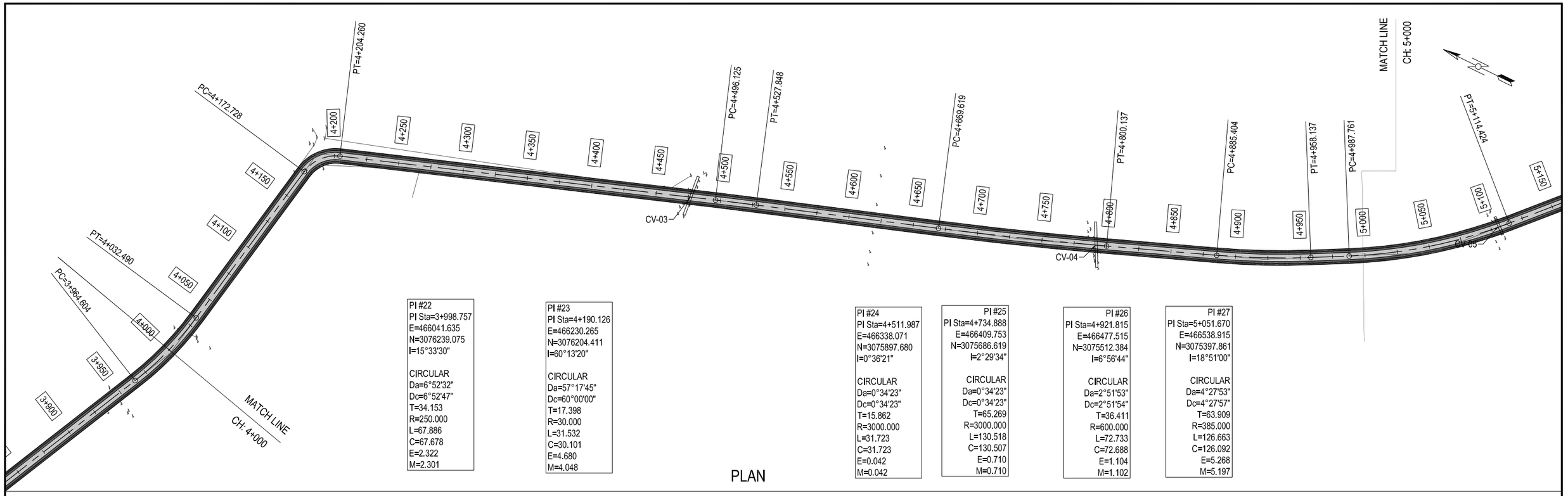

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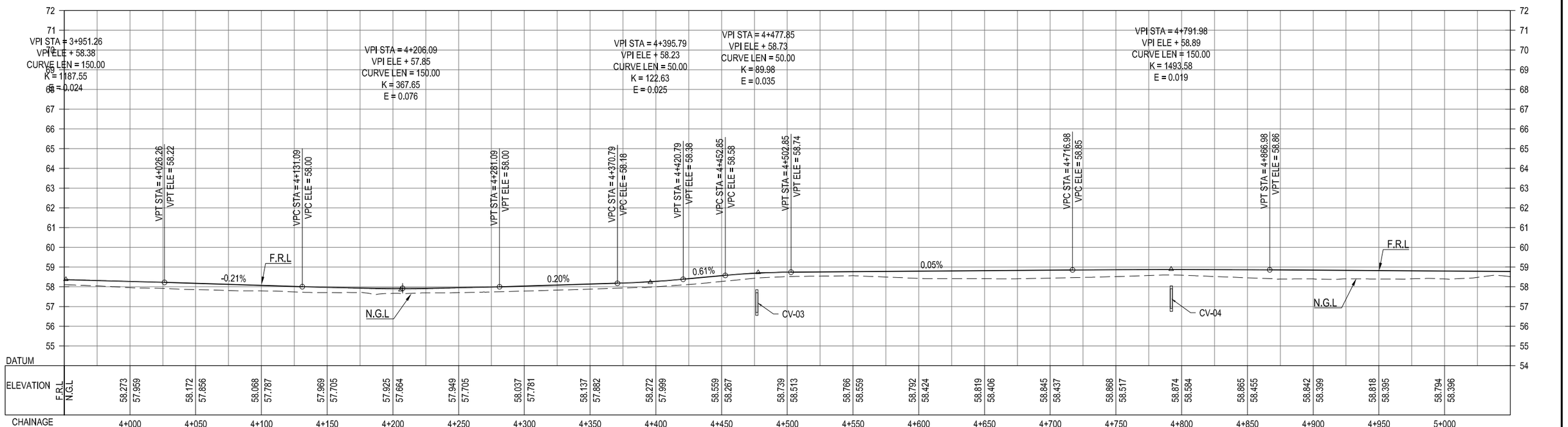
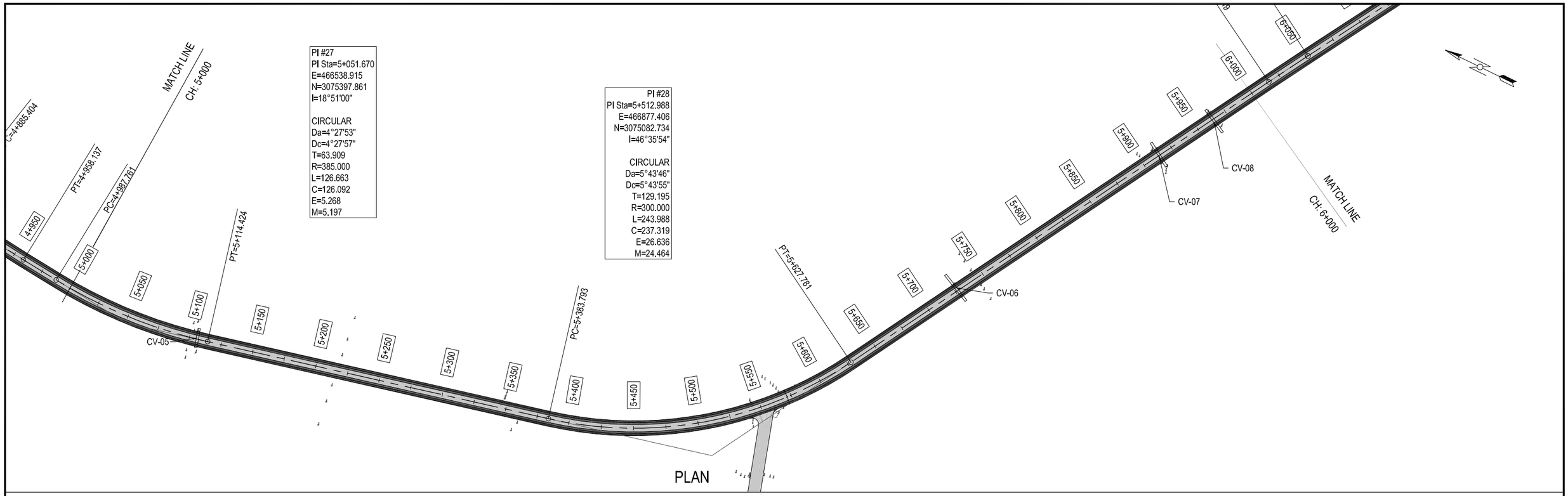
PLAN



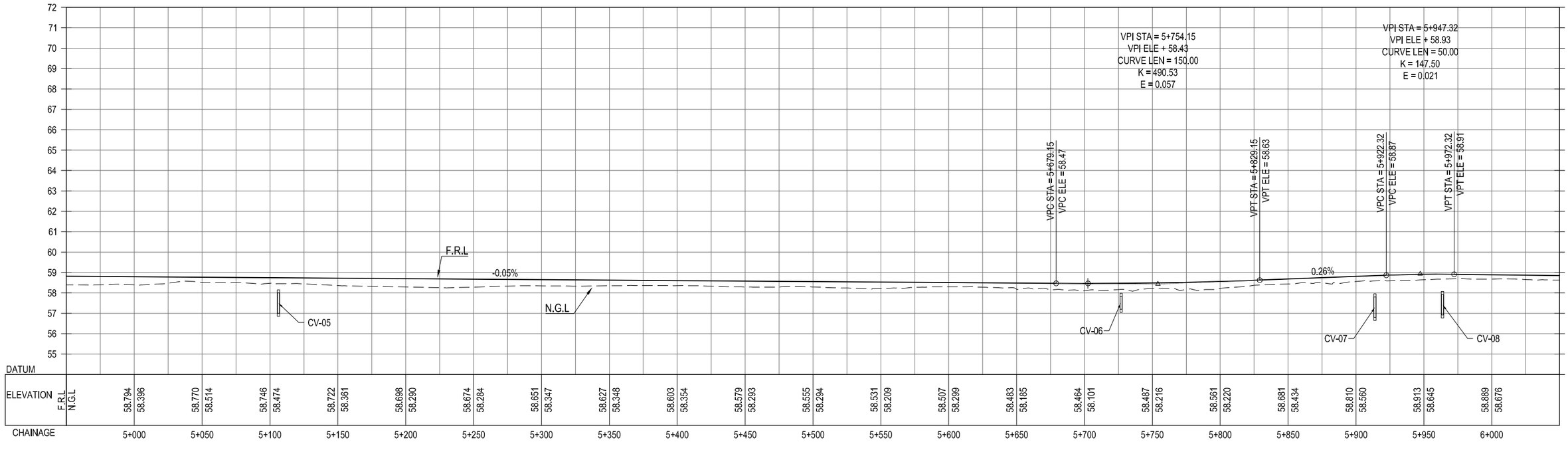
PROFILE

Tue, 25 Jul 2023 - 4:42pm
junaid r D:\SINDH ROADS\PLAN & PROFILE\SH-01\ 112.dwg

CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with	PROJECT ROAD:- SH-01 REHABLITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI TITLE:- PLAN & PROFILE OF SH-01 CH: 4+000 TO 5+000	ED.NO. / DATE / DESCRIPTION 0 / JULY,2023 / ISSUED FOR APPROVAL	DRAWN: JUNAID DESIGNED: HINA ZEESHAN CHECKED: MEHMOOD DATE: JULY, 2023	DRAWING NO. HWY-SH01-PP-05 Scale:- H=1:2000 V=1:20 Edition. 0



PLAN



PROFILE

Wed, 26 Jul 2023 - 10:48am
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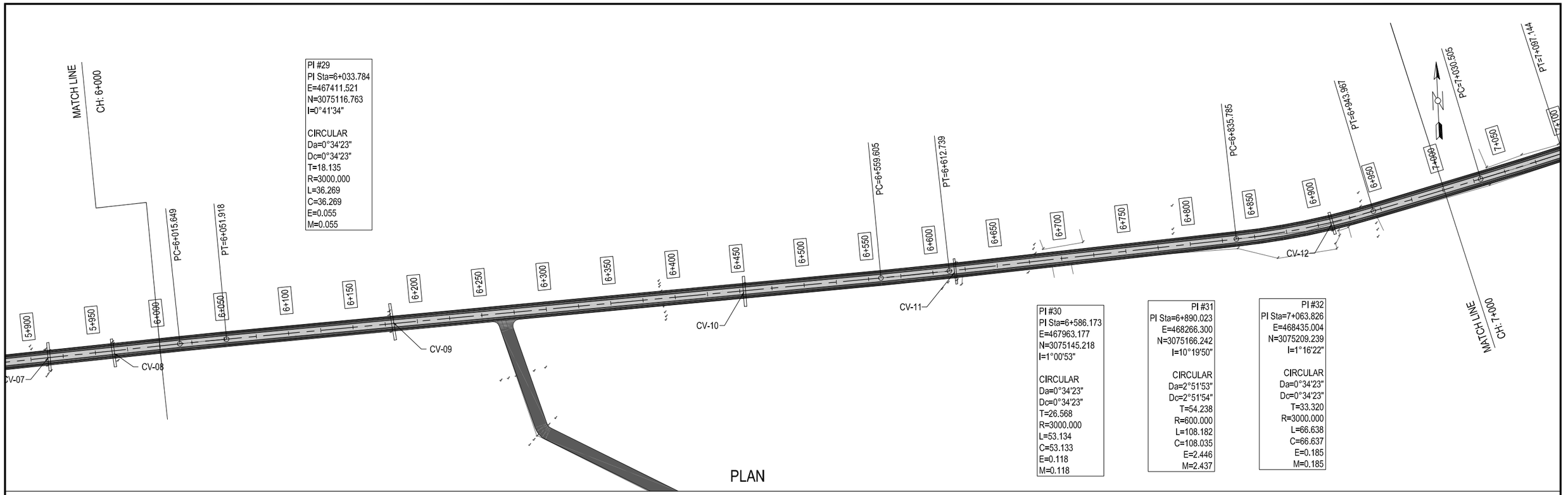
CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with AA	PROJECT ROAD:- SH-01 REHABLITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI TITLE:- PLAN & PROFILE OF SH-01 CH: 5+000 TO 6+000	ED.NO. / DATE / DESCRIPTION 0 / JULY,2023 / ISSUED FOR APPROVAL	DRAWN: JUNAID DESIGNED: HINA ZEESHAN CHECKED: MEHMOOD DATE: JULY, 2023	DRAWING NO. HWY-SH01-PP-06 Scale:- H=1:2000 V=1:20 Edition. 0



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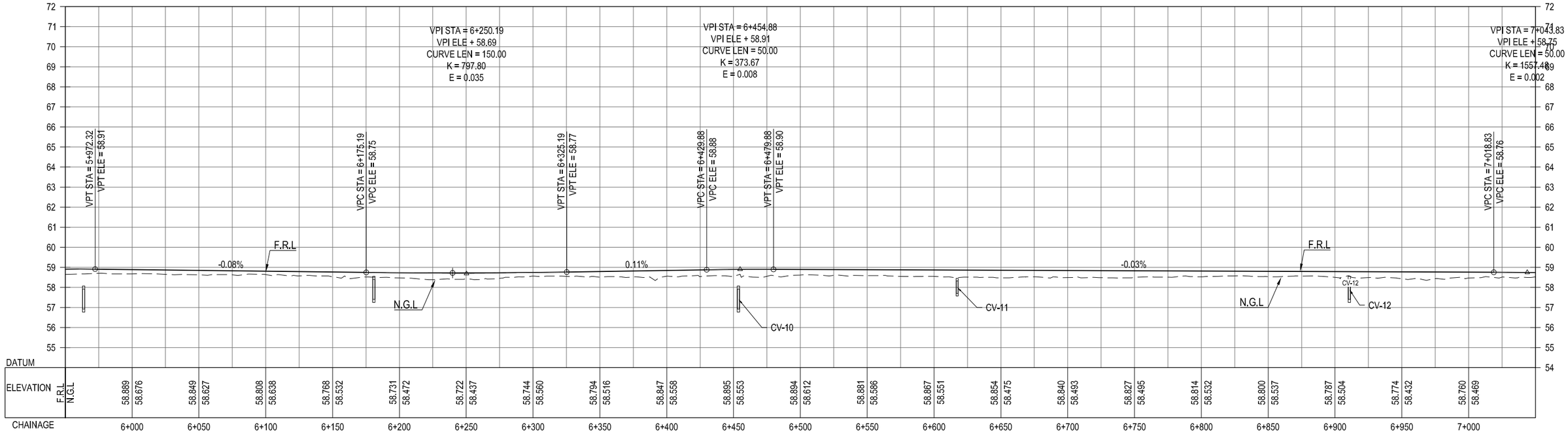

PROFILE

CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with AA	PROJECT ROAD:- SH-01 REHABLITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI TITLE:- PLAN & PROFILE OF SH-01 CH: 6+000 TO 7+000	ED.NO. / DATE / DESCRIPTION 0 / JULY,2023 / ISSUED FOR APPROVAL	DRAWN: JUNAID DESIGNED: HINA ZEESHAN CHECKED: MEHMOOD DATE: JULY, 2023	DRAWING NO. HWY-SH01-PP-07 Scale:- H=1:2000 V=1:20 Edition. 0

Wed, 26 Jul 2023 – 10:20am
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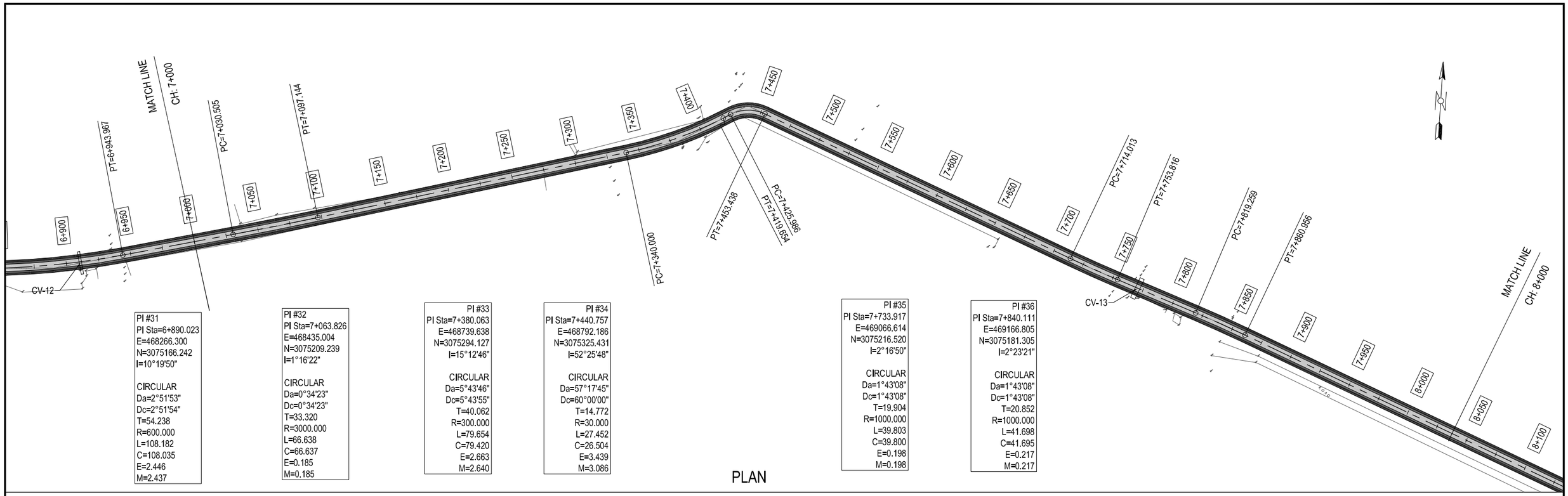

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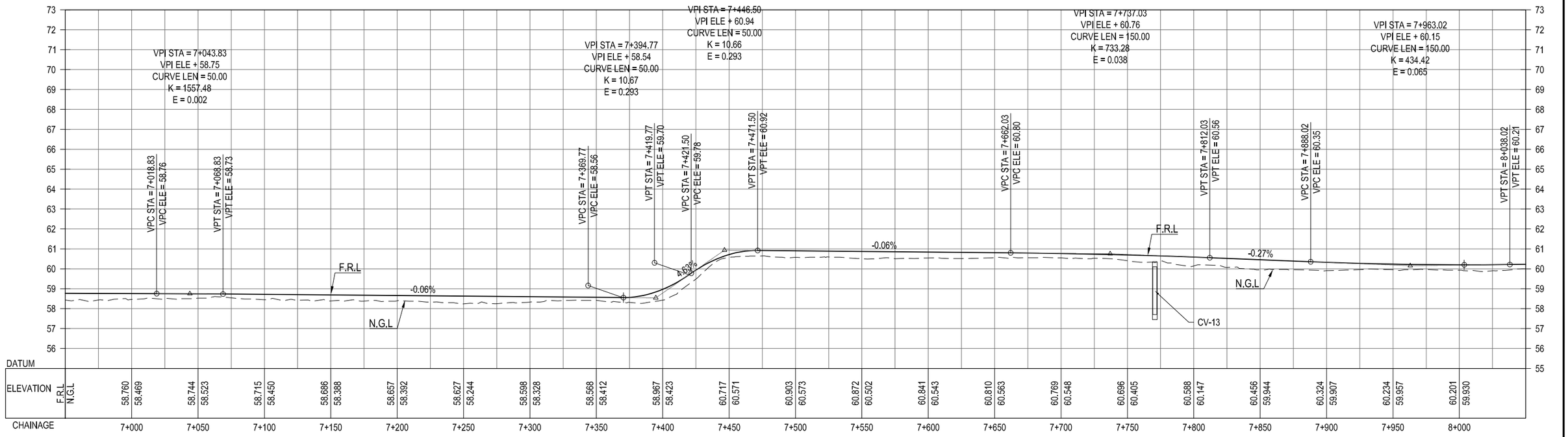

PROFILE

Wed, 26 Jul 2023 – 10:53am
junaidr D:\SINDH ROADS\PLAN & PROFILE\SH-01\ SH-01-PP-08.dwg

CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT FCIL In association with	PROJECT ROAD:- SH-01 REHABLITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI TITLE:- PLAN & PROFILE OF SH-01 CH: 7+000 TO 8+000	ED.NO.	DATE	DESCRIPTION	DRAWN: JUNAID DESIGNED: HINA ZEESHAN CHECKED: MEHMOOD DATE: JULY, 2023
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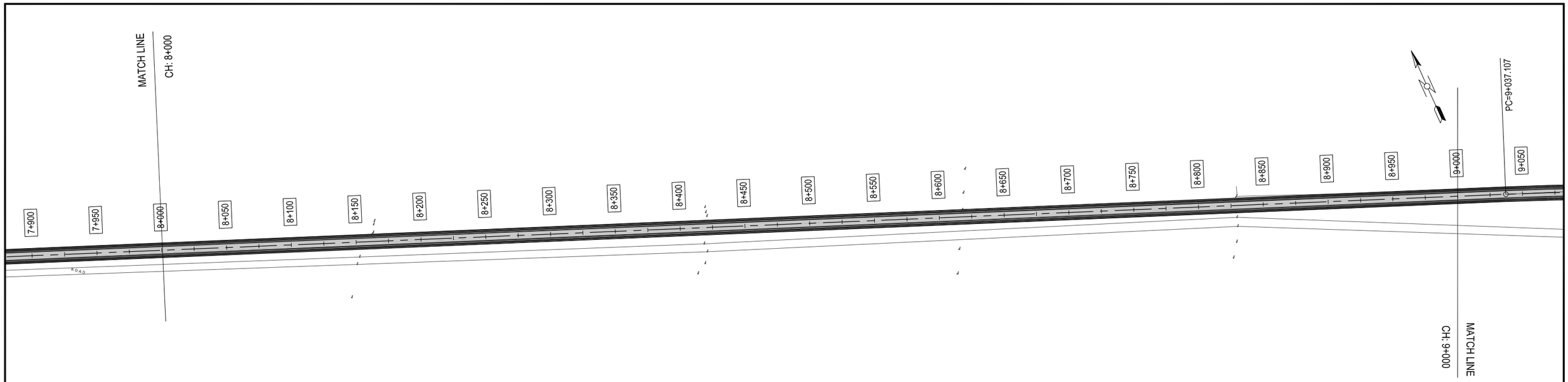

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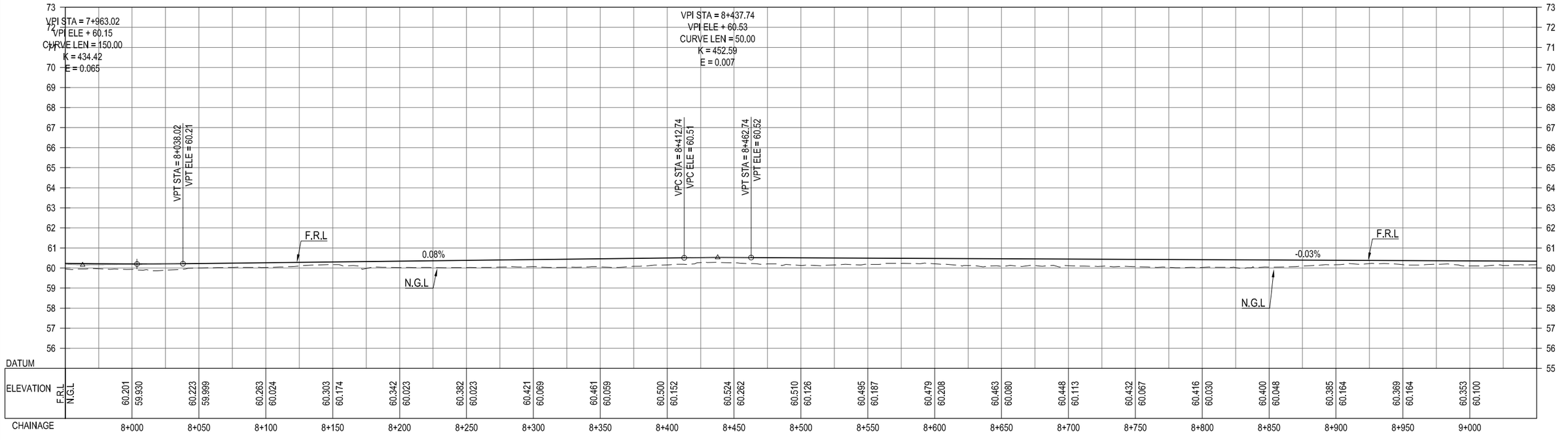

PROFILE

Wed, 26 Jul 2023 – 10:54am
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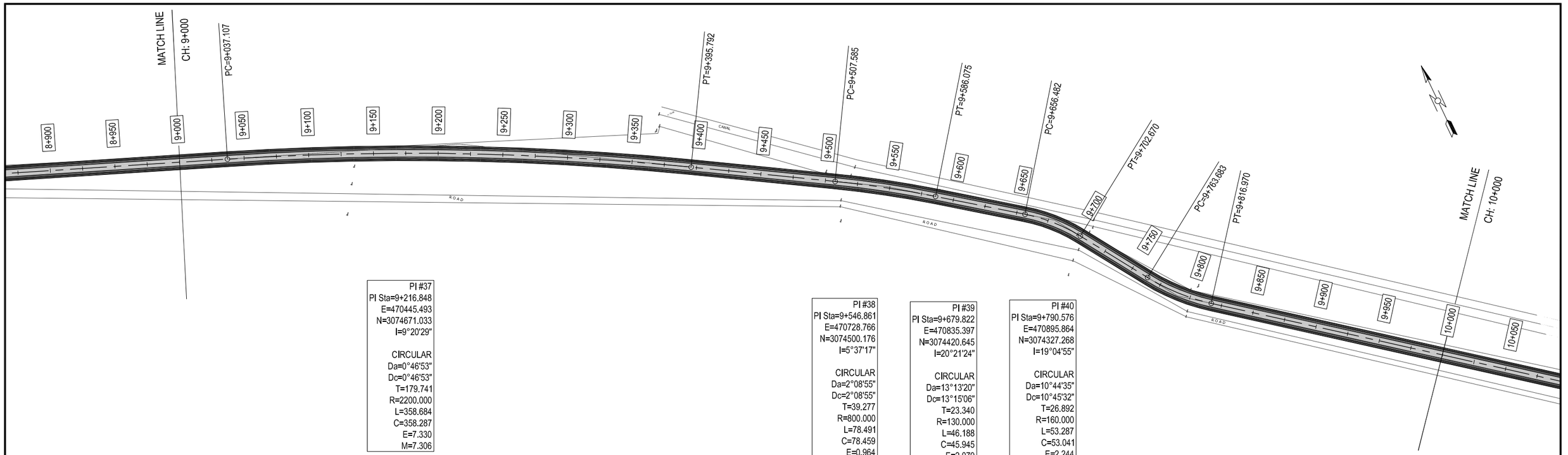
CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL in association with AA	PROJECT ROAD:- SH-01 REHABLITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI TITLE:- PLAN & PROFILE OF SH-01 CH: 8+000 TO 9+000	ED.NO. / DATE / DESCRIPTION 0 / JULY,2023 / ISSUED FOR APPROVAL	DRAWN: JUNAID DESIGNED: HINA ZEESHAN CHECKED: MEHMOOD DATE: JULY, 2023	DRAWING NO. HWY-SH01-PP-09 Scale:- H=1:2000 V=1:20 Edition. 0



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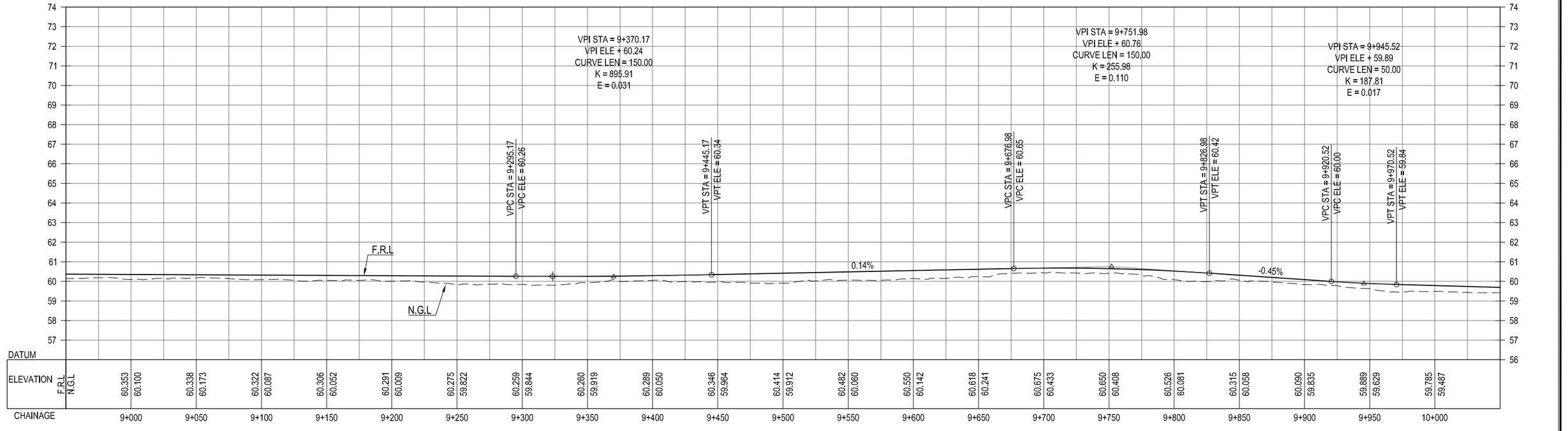
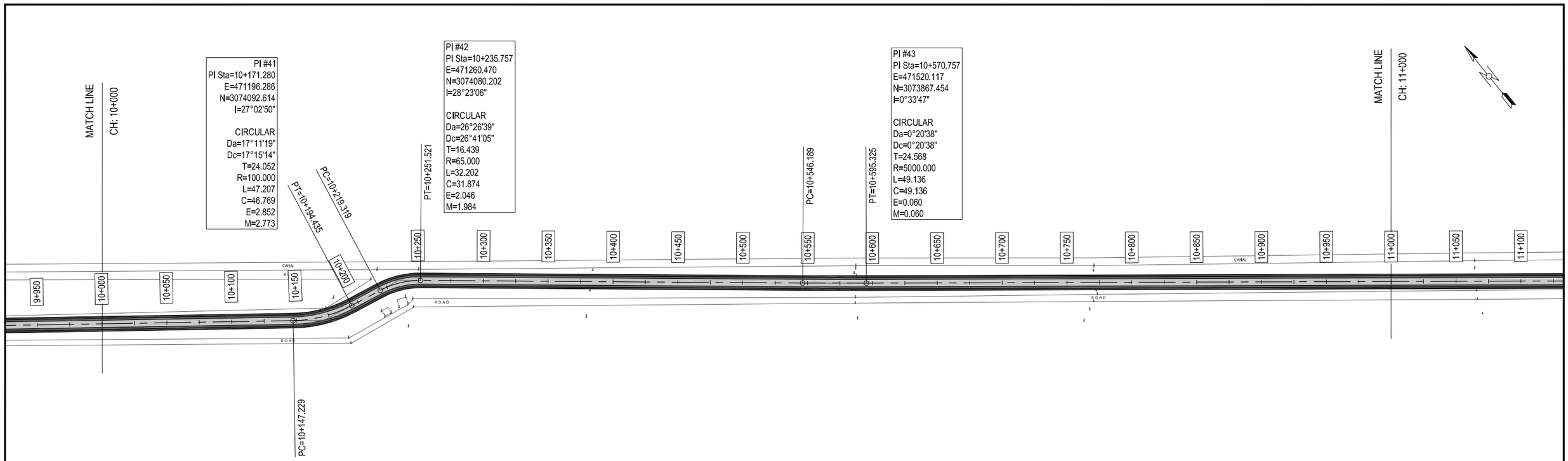
PLAN



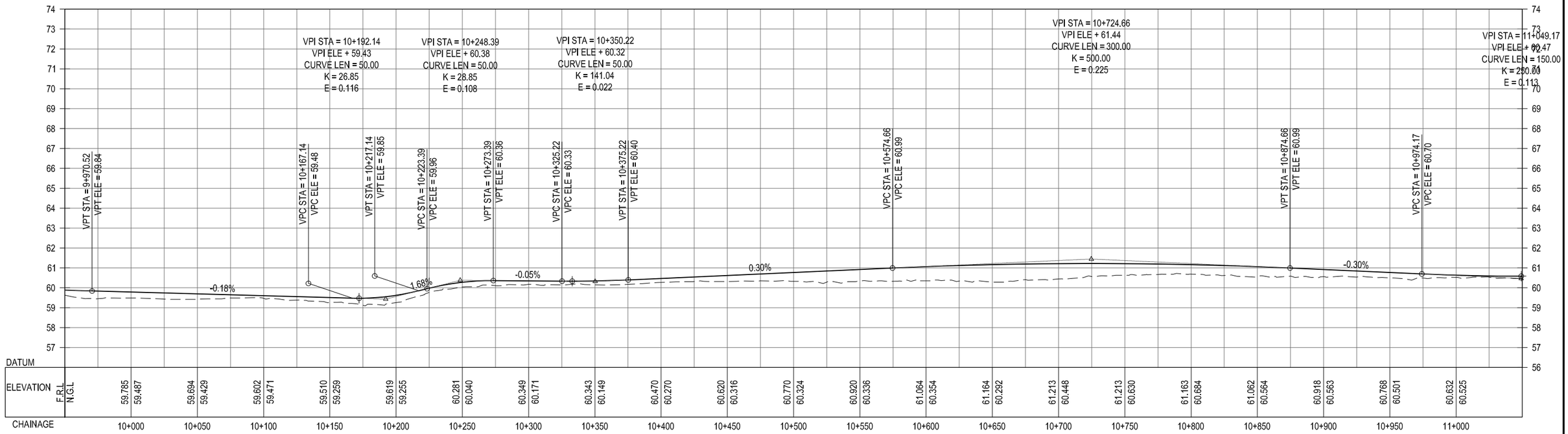
PROFILE

Wed, 26 Jul 2023 – 11:16am
junaid: D:\SINDH ROADS\PLAN & PROFILE\SH-01\ 117.dwg

CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with AA	PROJECT ROAD:- SH-01 REHABLITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI TITLE:- PLAN & PROFILE OF SH-01 CH: 9+000 TO 10+000	ED.NO. / DATE / DESCRIPTION 0 / JULY,2023 / ISSUED FOR APPROVAL	DRAWN: JUNAID DESIGNED: HINA ZEESHAN CHECKED: MEHMOOD DATE: JULY, 2023	DRAWING NO. HWY-SH01-PP-10 Scale:- H=1:2000 V=1:20 Edition. 0



PLAN



PROFILE

CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with	PROJECT ROAD:- SH-01 REHABLITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI TITLE:- PLAN & PROFILE OF SH-01 CH: 10+000 TO 11+000	ED.NO.	DATE	DESCRIPTION	DRAWN: JUNAID DESIGNED: HINA ZEESHAN CHECKED: MEHMOOD DATE: JULY, 2023
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Wed, 26 Jul 2023 - 11:31am
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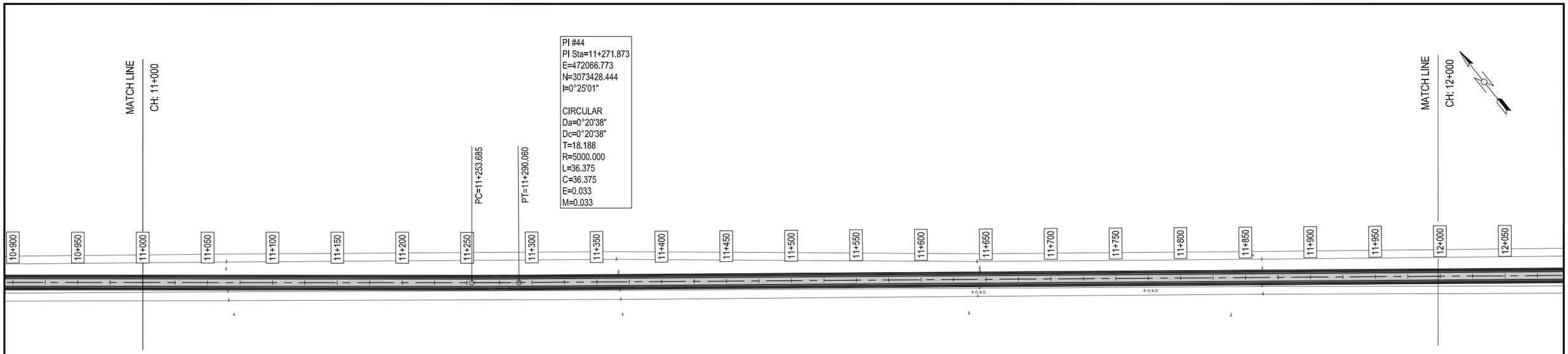

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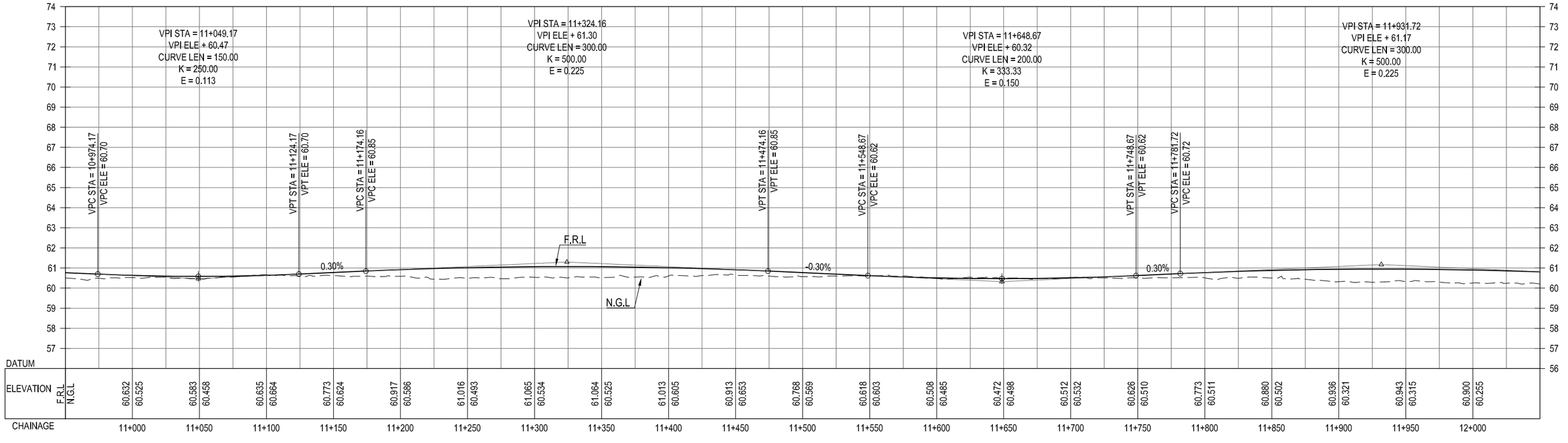
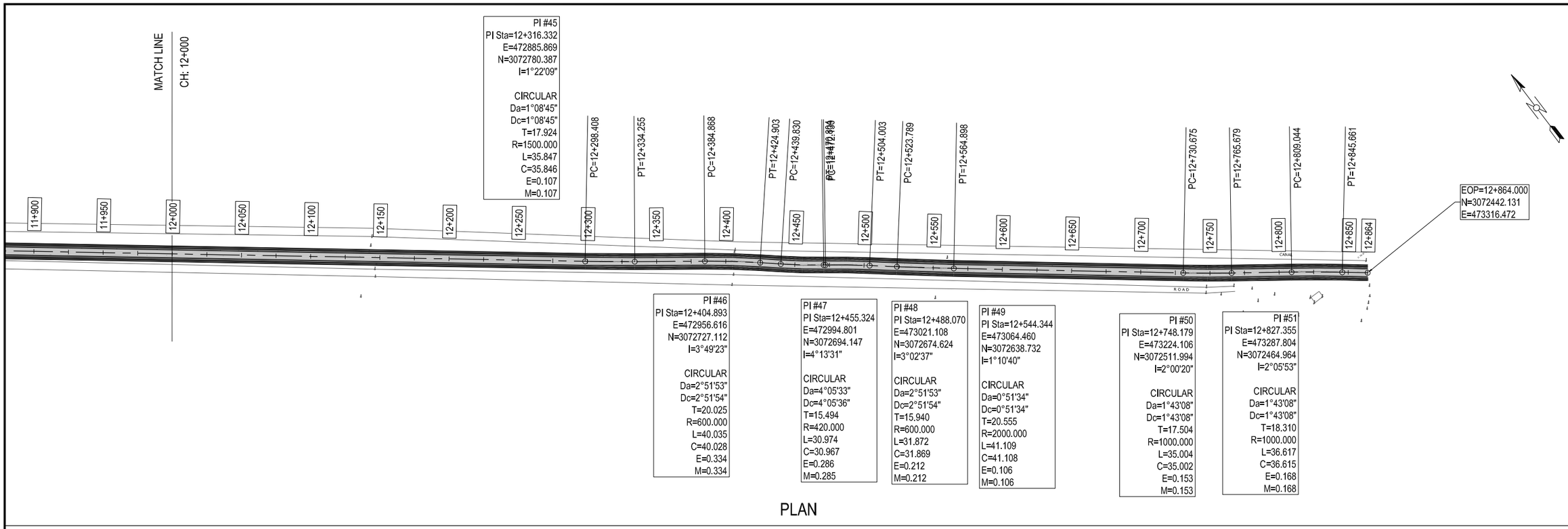


PROFILE

Wed, 26 Jul 2023 – 11:37am
junaid# D:\SINDH ROADS\PLAN & PROFILE\SH-01\ SH-01-PP-12.dwg

CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL in association with AA	PROJECT ROAD:- SH-01 REHABLITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI TITLE:- PLAN & PROFILE OF SH-01 CH: 11+000 TO 12+000	ED.NO. / DATE / DESCRIPTION 0 / JULY,2023 / ISSUED FOR APPROVAL	DRAWN: JUNAID DESIGNED: HINA ZEESHAN CHECKED: MEHMOOD DATE: JULY, 2023	DRAWING NO. HWY-SH01-PP-12 Scale:- H=1:2000 V=1:20 Edition. 0



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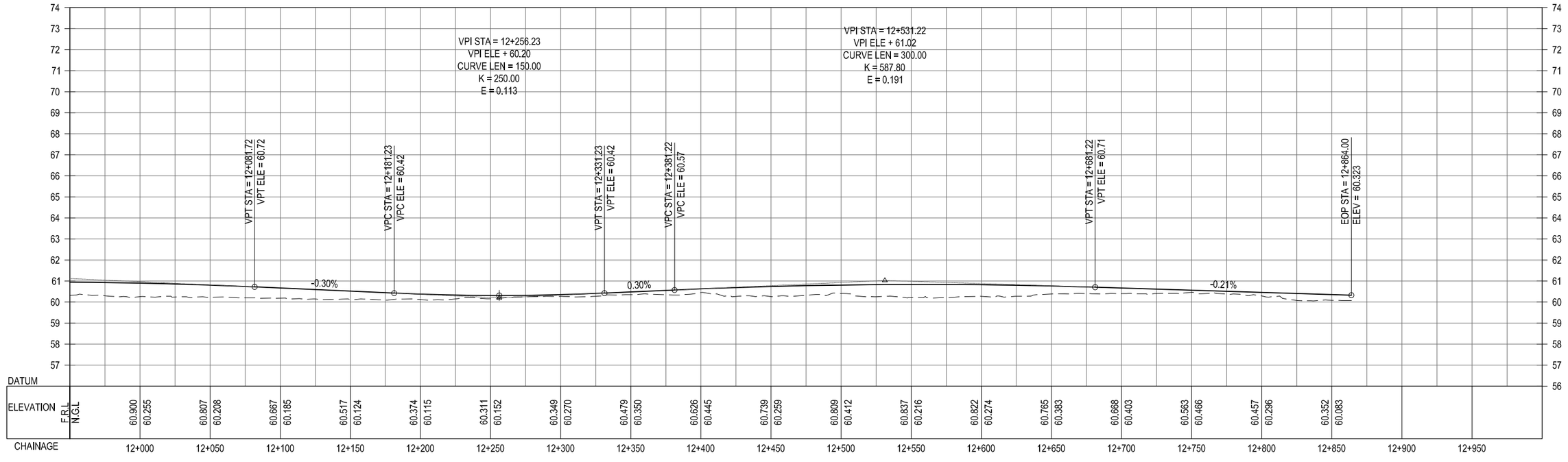

PROFILE

Wed, 26 Jul 2023 – 3:45pm
junaidr D:\SINDH ROADS\PLAN & PROFILE\SH-01\ SH-01-PP-13.dwg

CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with	PROJECT ROAD:- SH-01 REHABLITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI TITLE:- PLAN & PROFILE OF SH-01 CH: 12+000 TO 12+864	ED.NO.	DATE	DESCRIPTION	DRAWN: JUNAID DESIGNED: HINA ZEESHAN CHECKED: MEHMOOD DATE: JULY, 2023
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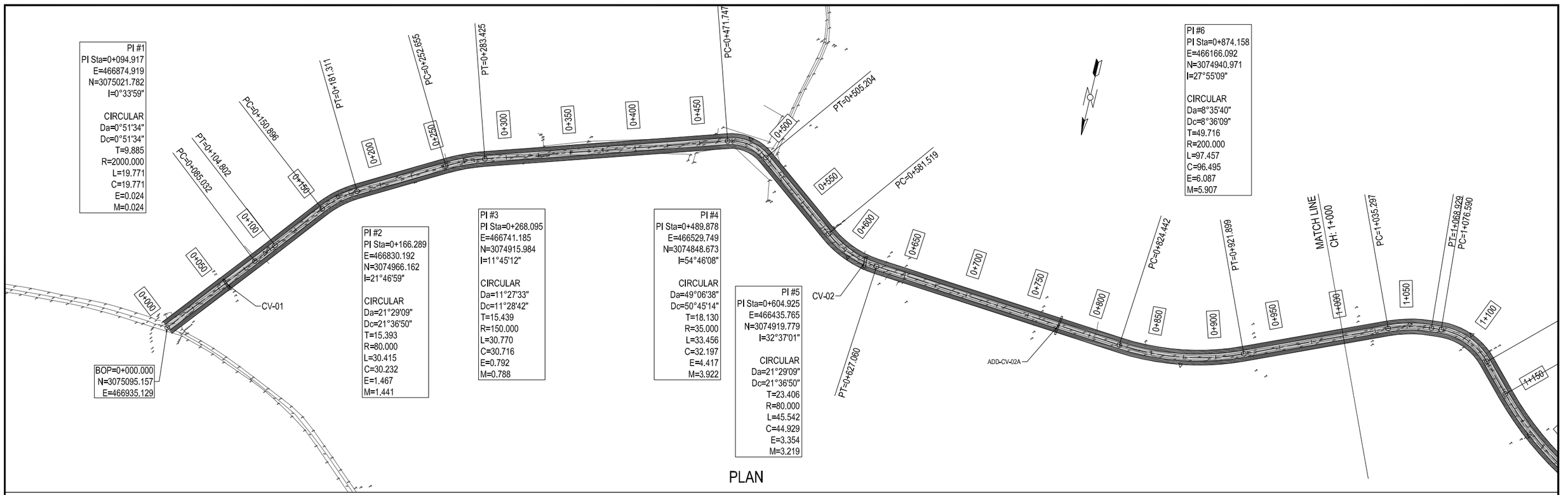
DRAWING NO. HWY-SH01-PP-13
Scale:- H=1:2000 V=1:20
Edition. 0

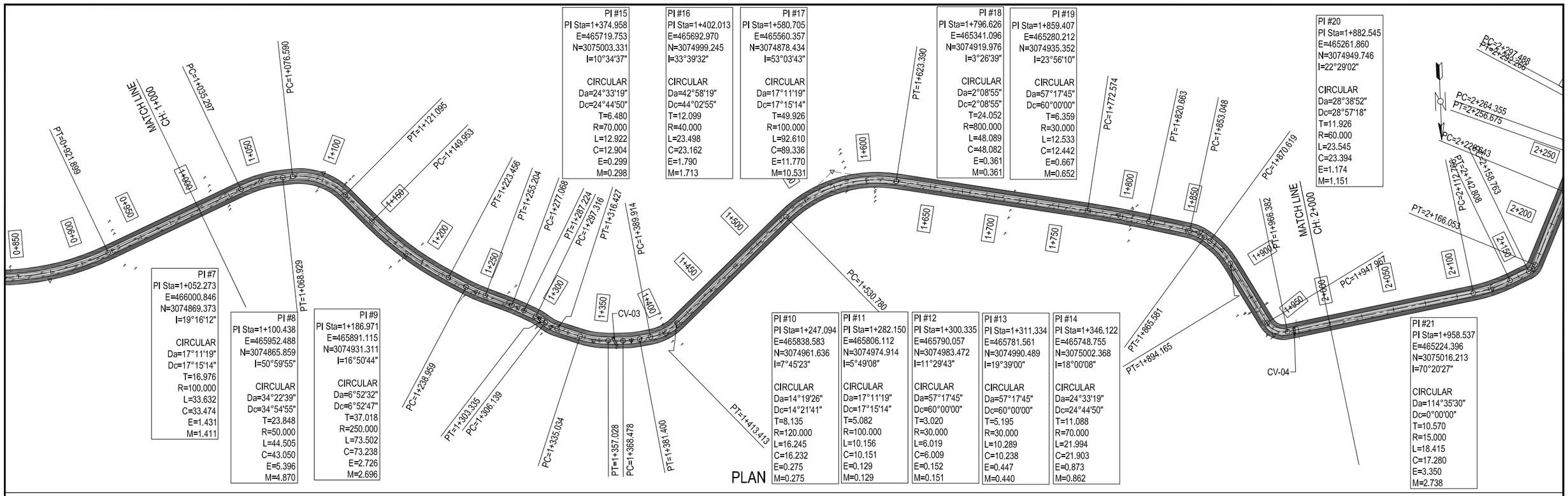
PLAN & PROFILE DRAWINGS

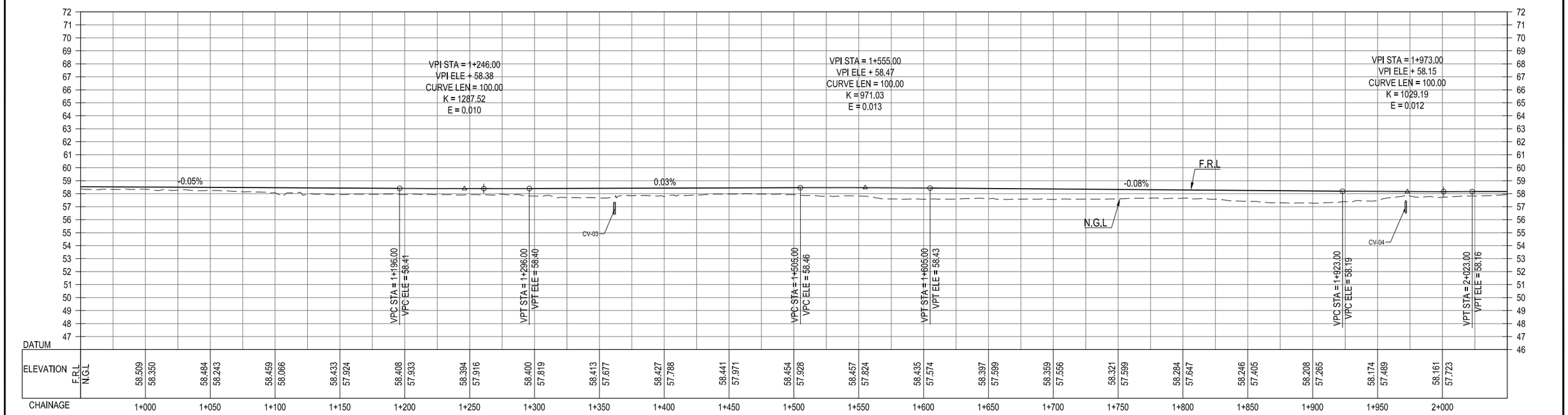
(LINK 1-B)



Wed, 26 Jul 2023 - 3:19pm
nsaqib D:\S SINDH ROAD\SH-1\ 1-SH1-1B-PP-01.dwg

CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with AA	PROJECT ROAD:- SH1 (Link 1B) REHABLITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI TITLE:- PLAN & PROFILE OF CH: 0+000 TO 1+000	ED.NO. / DATE / DESCRIPTION 0 / JULY,2023 / ISSUED FOR APPROVAL	DRAWN: ZEESHAN DESIGNED: HINA ZEESHAN CHECKED: MEHMOOD DATE: JULY, 2023	DRAWING NO. HWY-SH1-1B-PP-01 Scale:- H=1:3000 V=1:300 Edition. 0





PROFILE

Wed, 26 Jul 2023 - 3:18pm
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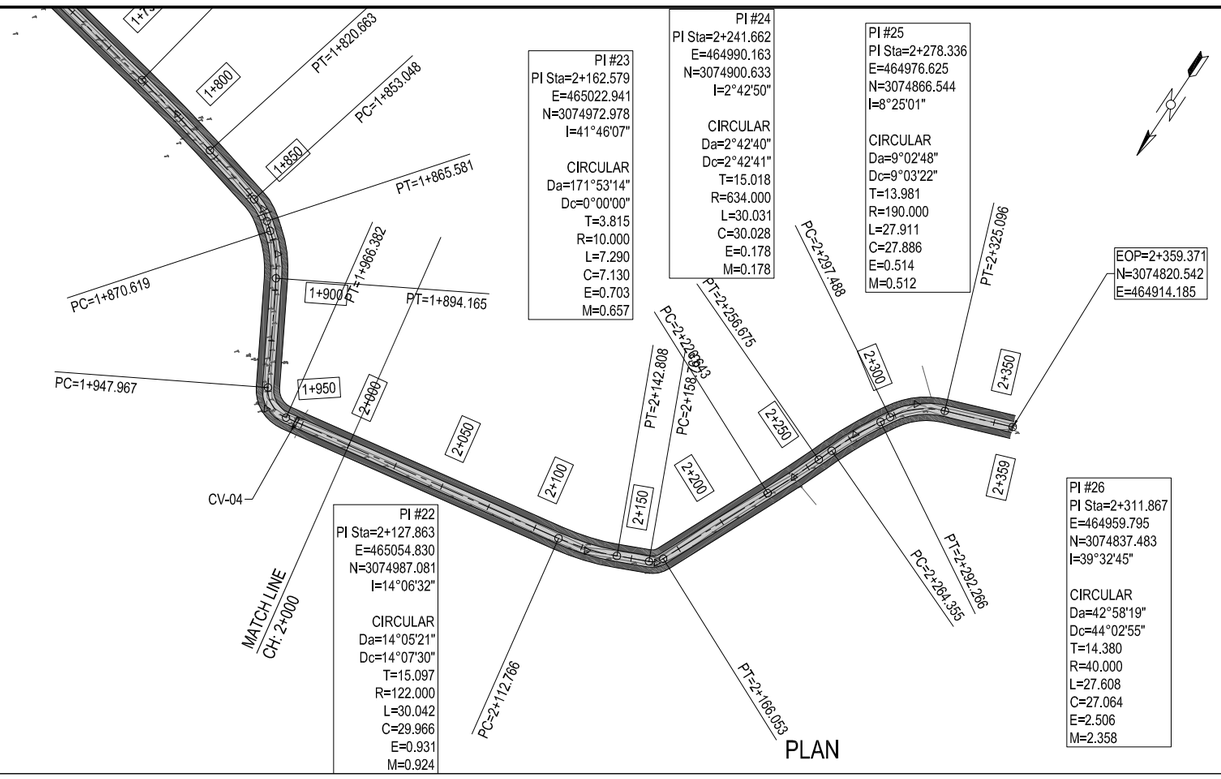
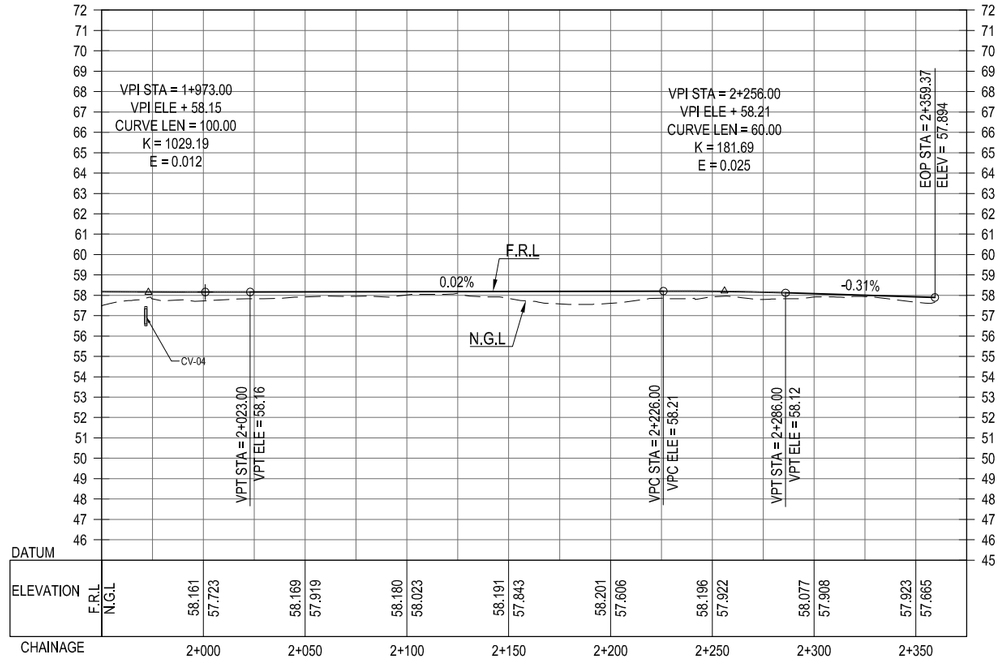
CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT EGIL In association with AA	PROJECT ROAD:- SH1 (Link 1B) REHABLITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI TITLE:- PLAN & PROFILE OF CH: 1+000 TO 2+000	ED.NO. / DATE / DESCRIPTION 0 / JULY,2023 / ISSUED FOR APPROVAL	DRAWN: ZEESHAN DESIGNED: HINA ZEESHAN CHECKED: MEHMOOD DATE: JULY, 2023	DRAWING NO. HWY-SH1-1B-PP-02 Scale:- H=1:3000 V=1:300 Edition. 0





PROFILE

Wed, 26 Jul 2023 - 3:20pm
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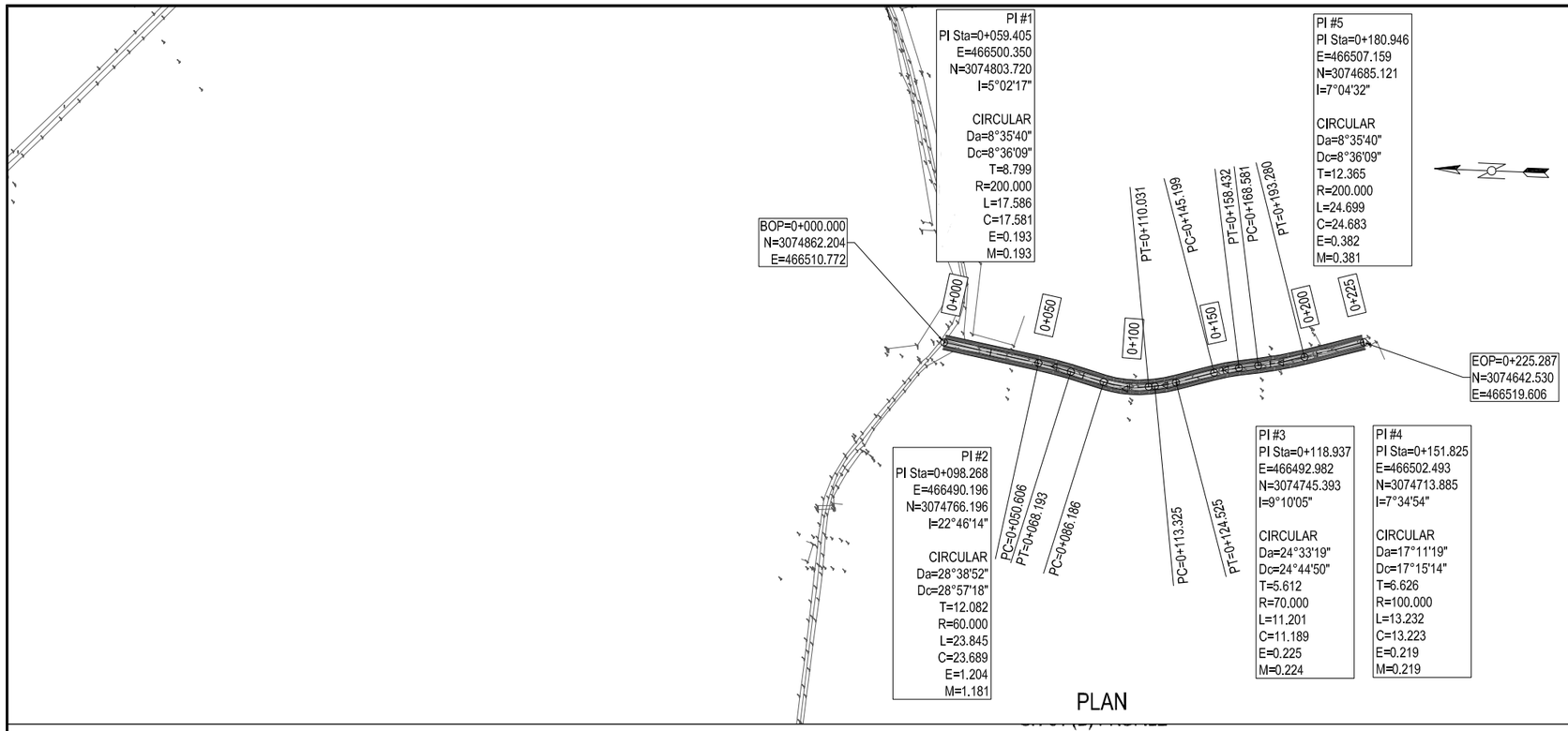
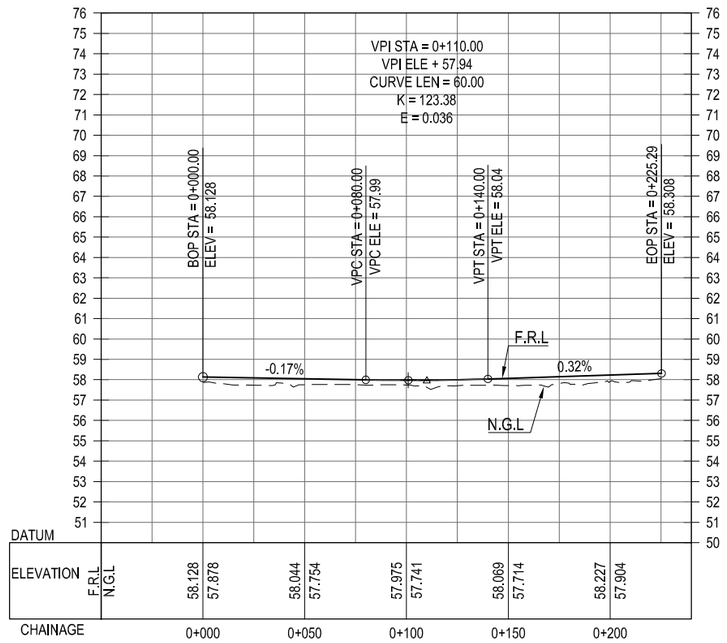
CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with AA	PROJECT ROAD:- SH1 (Link 1B) REHABLITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI TITLE:- PLAN & PROFILE OF CH: 2+000 TO 2+359.371	ED.NO.	DATE	DESCRIPTION	DRAWN: ZEESHAN DESIGNED: HINA ZEESHAN CHECKED: MEHMOOD DATE: JULY, 2023	DRAWING NO. HWY-SH1-1B-PP-03 Scale:- H=1:3000 V=1:300 Edition. 0
				0	JULY,2023	ISSUED FOR APPROVAL		

PLAN & PROFILE DRAWINGS

(LINK 1-C)



PLAN



PROFILE

Wed, 26 Jul 2023 - 3:18pm
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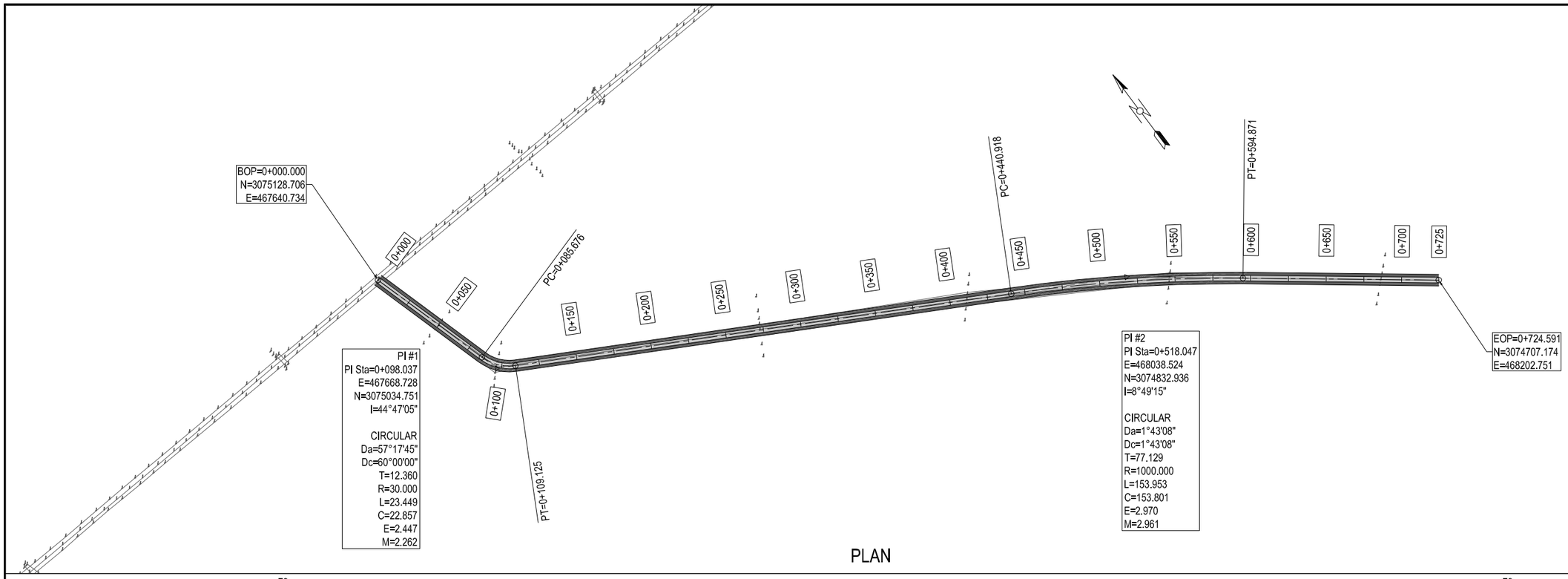
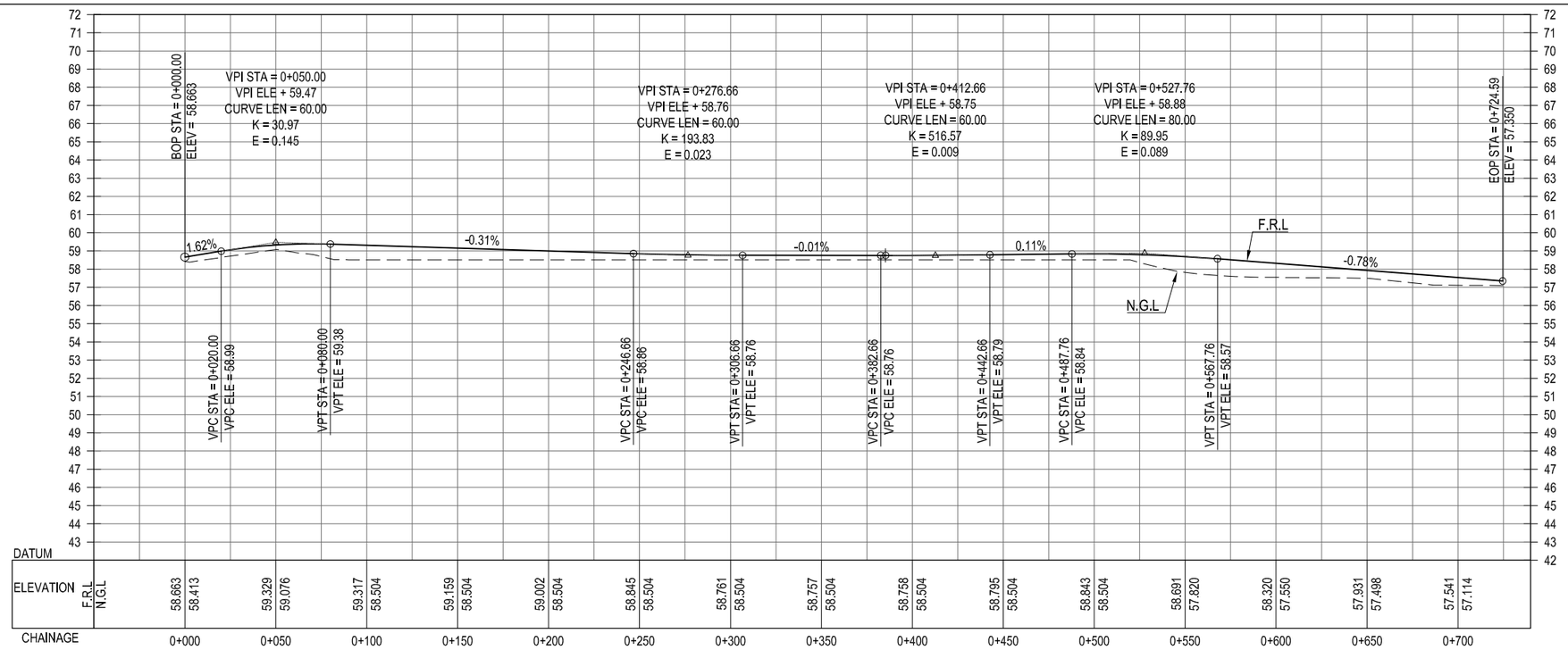
CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with AA	PROJECT ROAD:- SH1 (Link 1C) REHABLITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI TITLE:- PLAN & PROFILE OF CH: 0+000 TO 0+200.308	ED.NO.	DATE	DESCRIPTION	DRAWN: ZEESHAN DESIGNED: HINA ZEESHAN CHECKED: MEHMOOD DATE: JULY, 2023	DRAWING NO. HWY-SH1-1C-PP-01 Scale:- H=1:3000 V=1:300 Edition. 0
				0	JULY,2023	ISSUED FOR APPROVAL		

PLAN & PROFILE DRAWINGS

(LINK 1-D)



PLAN



PROFILE

Wed, 26 Jul 2023 - 3:17pm
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CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with AA	PROJECT ROAD:- SH1 (Link 1D) REHABLITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI TITLE:- PLAN & PROFILE OF CH: 0+000 TO 0+724.591	ED.NO. / DATE / DESCRIPTION 0 / JULY,2023 / ISSUED FOR APPROVAL	DRAWN: ZEESHAN DESIGNED: HINA ZEESHAN CHECKED: MEHMOOD DATE: JULY, 2023	DRAWING NO. HWY-SH1-1D-PP-01 Scale:- H=1:3000 V=1:300 Edition. 0

LIST OF DRAWINGS

S. NO.	DESCRIPTION	DRAWING NO.
1	LIST OF DRAWING	2053-STR-SH01-LD-01
2	GENERAL NOTES	2053-STR-SH01-GN-01
	BRIDGES	
1	SCHEDULE OF BRIDGES	2053-STR-SH01-BR-SCH-01
	BRIDGES REPAIR AND EXTENSION DETAILS	
1	TYPICAL DECK SLAB REPLACEMENT DETAILS FOR SPAN UPTO 10M (W/O BEAMS)	2053-STR-SH01-BR-R-01
2	TYPICAL DECK SLAB REPLACEMENT DETAILS FOR SPAN > 10M (WITH GIRDERS)	2053-STR-SH01-BR-R-02
3	TYPICAL TRANSOM REPLACEMENT DETAILS AT EXISTING WALL TYPE PIERS	2053-STR-SH01-BR-R-03
4	TYPICAL REPAIR DETAILS (SHEET 1 OF 2)	2053-STR-SH01-BR-R-04
5	TYPICAL REPAIR DETAILS (SHEET 2 OF 2)	2053-STR-SH01-BR-R-05
6	TYPICAL PRECAST GUARDRAILS END BARRIER MEDIAN BARRIER DETAILS	2053-STR-SH01-BR-R-06
7	ELECTRICAL POLE FIXING DETAILS	2053-STR-SH01-BR-R-07
	CULVERTS	
1	SCHEDULE OF CULVERTS	2053-STR-SH01-CU-SCH-01
	BOX CULVERTS	
1	RCC BOX CULVERT - GENERAL ARRANGEMENT	2053-STR-SH01-BC-01
2	RCC BOX CULVERT - DETAILS OF APRON SLAB & WING WALLS	2053-STR-SH01-BC-02
3	RCC BOX CULVERT - REINFORCEMENT DETAILS OF BOX CULVERT	2053-STR-SH01-BC-03
4	RCC BOX CULVERT - REINFORCEMENT DETAILS OF APRON SLAB & WING WALLS (FOR CULVERT HEIGHT ⩽ 2m)	2053-STR-SH01-BC-04
5	REINFORCEMENT DETAILS OF APRON SLAB & WING WALLS FOR CULVERT HEIGHT > 2M	2053-STR-SH01-BC-05

CLIENT:-
ADB Asian Development Bank

EXECUTING AGENCY:-
WORKS AND SERVICES DEPARTMENT
GOVERNMENT OF SINDH

PROJECT:-
LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)

DESIGN CONSULTANT
ECIL
In association with

PROJECT ROAD:-
DISTRICT : SHIKARPUR - SH-01
REHABILITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI

TITLE:-
LIST OF DRAWINGS

ED.NO.	DATE	DESCRIPTION

DRAWN: F.A.S
DESIGNED: R.I / M.A
CHECKED: S.A
DATE: JUNE 2023

DRAWING NO. 2053-STR-SH01-LD-01
Scale:- 1:1
Edition.

GENERAL NOTES

1. THE STRUCTURES ARE DESIGNED FOR CLASS AA AND CLASS A LOADING SPECIFIED IN GOVERNMENT OF WEST PAKISTAN, HIGHWAY DEPARTMENT CODE OF PRACTICE FOR HIGHWAY BRIDGES, 1967.
2. CONCRETE IN ALL ELEMENTS OF SUBSTRUCTURE BELOW GROUND LINE TO BE MADE FROM ORDINARY PORTLAND CEMENT. IF SUBSOIL INVESTIGATIONS INDICATE THE PRESENCE OF SULPHATES IN BEARING SOIL, THEN SULPHATE RESISTING CEMENT INSTEAD OF ORDINARY PORTLAND CEMENT SHALL BE USED.
3. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO GENERAL SPECIFICATIONS (1998) AS GIVEN IN CONTRACT DOCUMENTS AND RELEVANT AASHTO STANDARDS UNLESS OTHERWISE STIPULATED. WHEREVER ASTM SPECIFICATIONS ARE REFERRED TO, THEY SHALL BE FOLLOWED. A COPY OF THE STANDARDS SHALL BE SUPPLIED BY THE CONTRACTOR TO THE ENGINEER.
4. DIMENSION ON THE DRAWINGS ARE IN MILLIMETER EXCEPT OTHERWISE NOTED.
5. THE LOAD FACTORS AND LOAD COMBINATIONS ARE BASED ON THE STIPULATION GIVEN IN AASHTO LRFD BRIDGES DESIGN SPECIFICATIONS.
6. ALL BLINDING CONCRETE SHALL BE LEAN CONCRETE.
7. ALL STRUCTURAL CONCRETE SHALL CONFORM TO AASHTO T–22, AASHTO T–23 AND AASHTO T–24 AS SPECIFIED. MINIMUM COMPRESSIVE STRENGTHS AS MEASURED ON CYLINDERS AT 28 DAYS SHALL BE AS FOLLOWS.
   - CLASS A1 (210 kg./sq. cm.) FOR BARRIER, APPROACH SLAB AND ALL OTHER REINFORCED CONCRETE MEMBERS EXCEPT NOTED BELOW.
   - CLASS A3 (280 kg./sq. cm.) FOR TRANSOMS, PILECAPS, ABUTMENTS & RETAINING WALLS, PILES, PIER SHAFTS, DECK SLAB, DIAPHRAGMS & CULVERTS
   - CLASS D2 (425 kg./sq. cm.) FOR PRECAST PRESTRESSED CONCRETE GIRDERS.
8. REINFORCING STEEL INDICATED ON DRAWINGS AS ϕ SHALL BE AS PER AASHTO M31 GRADE 60
9. ALL BAR DIAMETERS ARE IN MILLIMETERS. BARS ARE DESIGNATED BY A CODE CONSISTING OF THREE NUMBERS SEPARATED BY TWO HYPHENS, THE FIRST NUMBER IS THE BAR IDENTIFICATION MARK, THE MIDDLE NUMBER IS ITS DIAMETER IN MILLIMETERS AND THIRD NUMBER IS THE NUMBER OF BARS REQUIRED, FOR EXAMPLE

   126 ——— 16 ——— 24
   BAR MARKS DIAMETER IN MILLIMETER NUMBERS REQUIRED
10. THE CONTRACTOR SHALL PREPARE ALL BAR BENDING SCHEDULES ETC. AND SUBMIT THEM FOR APPROVAL OF THE ENGINEER PRIOR TO CUTTING, BENDING AND PLACEMENT.
11. ALL REINFORCING STEEL SHALL BE ACCURATELY LOCATED IN THE FORMWORK AND HELD FIRMLY IN PLACE, BEFORE PLACING OF CONCRETE BY MEANS OF 16 GUAGE BLACK ANNEALED WIRE AND ADEQUATELY DESIGNED SPACERS.
12. UNLESS OTHERWISE SHOWN ON THE DRAWING LAPS IN REINFORCING STEEL BARS SHALL BE STAGGERED. MINIMUM LENGTH OF LAP SHALL BE AS PER AASHTO REQUIREMENTS.
13. THE GIRDERS SHALL BE PLACED IN SPANS BY APPROVED MEANS TO ENSURE THEIR PLACEMENT WITHOUT DAMAGE AND ACCIDENT, GIRDERS SHALL BE PLACED AT CORRECT POSITION AS SHOWN ON THE DRAWINGS AND TEMPORARILY BRACED LATERALLY UNTIL DIAPHRAGMS/TRANSOMS AND DECK SLABS ARE CAST. THE ERECTION PROCESS SHALL NOT HINDER NORMAL MOVEMENT OF TRAFFIC.
14. MULTISTRAND PRESTRESSING SYSTEM HAS BEEN USED IN THE DESIGN. FIXTURES AND DETAILS SHALL CONFORM TO ONE OF THE FOLLOWING SYSTEMS:–
   - OVM
   - FREYSSINET
   - VSL
   - STRONGHOLD
15. PRESTRESSING STEEL SHALL CONFORM TO ASTM–416 (GRADE–270) WITH MINIMUM ULTIMATE STRENGTH OF 1860 N/sq.mm.
16. ALL TENDONS SHALL BE STRESSED FROM ONE END ALTERNATELY UNLESS OTHERWISE SHOWN ON DRAWINGS AND SUBSTITUTION OF LIVE ANCHORAGE WITH BLIND ANCHORAGE FOR ONE – END STRESSING IS PERMITTED.
17. IF ANCHORAGE PULL–IN OF STRANDS EXCEEDS 6 mm, THE TENDON SHALL BE DESTRESSED BY APPROVED MEANS AND SHALL BE RESTRESSED USING NEW SET OF GRIPS.
18. TENDONS SHALL BE STESSED AFTER THE CONCRETE HAS ATTAINED A CRUSHING STRENGTH OF 425 Kg/sq.cm. THE EXTENSIONS SHOWN IN DRAWINGS ARE THE TOTAL EXTENSION TO BE ACHIEVED BEFORE LOCKING AND ARE CALCULATED ON THE BASIS OF 200000 N/sq.mm AS MODULUS OF ELASTICITY OF STEEL: FOR OTHER VALUES OF MODULUS OF ELASATICITY, EXTENSIONS SHOULD BE CALCULATED ON PRO–RTA BASIS. TENDONS SHOULD NOT BE LOCKED IF THE ACTUAL EXTENSIONS VARY MORE THAN 10% FROM THE VALUES SHOWN OR CALCULATED AS THE CASE MAY BE AND THE MATTER REPORTED TO ENGINEER WHO SHALL GIVE FURTHER INSTRUCTION.
19. PRESTRESSING TENDONS COMPRISE 0.5 INCHES DIAMETER 7 WIRES STRANDS IN NUMBERS STATED IN THE RESPECTIVE DRAWINGS.
20. THE ORDER OF STRESSING SHALL BE AS STATED IN THE DRAWINGS.
21. ANCHORAGE POCKET SHALL BE FILLED WITH CLASS A1 CONCRETE USING 12 mm DOWN AGGREGATES, AFTER GROUTING AND TRIMMING TENDONS.
22. INTERMEDIATE GROUT VENTS SHALL BE PROVIDED AT ABOUT MID LENGTH OF THE TENDONS WHEN TENDON LENGTH IS MORE THAN 12 METERS.
23. ALL EXPOSED CORNERS OF CONCRETE TO BE CHAMFERED 25 mm x 25 mm EXCEPT OTHER WISE SHOWN.
24. ALL REINFORCED CONCRETE AND PRESTRESSED SHALL BE FAIR–FACED TO BE CAST IN STEEL FORMWORK AND PLATES OF NOT LESS THAN 3 mm THICKHNESS. TIMBER AND STEEL–CLAD TIMBER FORMWORK SHALL NOT BE ALLOWED.
25. THE DESIGN AND THE ENGINEERING OF THE FORMWORK AND FALSEWORK AS WELL AS ITS CONSTRUCTION SHALL BE RESPONSIBILITY OF THE CONTRACTOR, DESIGN OF FORMWORK AND FALSEWORK SHALL COMPLY WITH THE SPECIFICATIONS AND IN GENERAL CONFORM TO ACI 318–95 AND ACI SP–4.
26. CONCRETE IN DECK SLAB SHALL BE PLACED IN FULL WIDTH. NO CONSTRUCTION JOINT SHALL BE PERMITTED EXCEPT AS MENTIONED IN THE DRAWING OF CONSTRUCTION SEQUENCE OF DECK SLAB.
27. ELASTOMERIC BEARING PADS SHALL CONFORM TO SECTION 25, DIVISION 2 OF AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES 1992 AS AMENDED IN 1994, FULLY ENCLOSED IN RUBBER
28. BRIDGE BEARINGS SHALL BE PLACED IN HORIZONTAL POSITIONS. INCLINED OR TAPERED BEARINGS SHALL NOT BE ALLOWED.
29. BEFORE COMMENCEMENT OF CONSTRUCTION OF PERMANENT PILES, TEST PILES SHALL BE CONSTRUCTED, TESTED AND THE LOAD TEST RESULT SHALL BE SUBMITTED TO THE ENGINEER, WHO SHALL APPROVE OR AMMEND THE PILE TIP LEVEL.
30. THE PILES SHALL BE BORED–CAST–IN–PLACE. THE WORKING LOAD AND DIAMETER OF THE PILE ARE STATED ON THE GENERAL ARRANGEMENT DRAWING.
31. THE PILING WORK SHALL BE EXECUTED USING APPROPRIATE PILING EQUIPMENT AND METHODOLOGY TO BE APPROVED IN WRITING BY THE ENGINEER.
32. THE PILE TIP LEVELS ARE TENTATIVE AND TO BE CONFIRMED BY THE ENGINEER UPON COMPLETION OF SUBSOIL INVESTIGATION AND REPORT BY THE GEOTECHNICAL ENGINEER OF THE CONTRACTOR.
33. CLEAR COVER TO REINFORCEMENT TO BE:
   (a) 25 mm IN DECK SLAB & APPROACH SLAB (BOTTOM REINF.)
   40 mm IN DECK SLAB & APPROACH SLAB (TOP REINF.)
   (b) 25 mm IN BARRIER.
   (c) 40 mm IN GIRDERS, TRANSOMS, DIAPHRAGMS (TOP & BOTTOM REINF.).
   (d) 40 mm IN WALLS.
   (e) 50 mm IN PILECAP
   (f) 75 mm IN PILES & PIER SHAFTS UNLESS OTHERWISE SPECIFIED.
34. FOR CORRECT FIXATION OF FINISHED DECK LEVELS OF BRIDGES LOCATED ON CURVES WITH SUPER ELEVATION, REFER TO PLAN AND PROFILE DRAWINGS PRIOR TO CASTING OF DECK SLAB.

LEGEND AND SYMBOLS

	(IN ELEVATION OR SECTION) FINISHED SURFACE ELEVATION
———	REINFORCEMENT
E.F.	EACH FACE
EA	EACH
R	RADIUS
DWG.	DRAWING
N.T.S.	NOT TO SCALE
CRS	(ON) CENTRES
I.F	INNER FACES
O.F	OUTER FACES
B.F.	BOTH FACES
EL.	ELEVATION
$N/mm.^2$	NEWTON PER SQUARE MILLIMETER.
T	TOP
℄	CENTRELINE
B	BOTTOM
ALT	ALTERNATELY
E.J.	EXPANSION JOINT
C.J.	CONSTRUCTION JOINT
N.S.I.E	NOT SHOWN IN ELEVATION
N.S.I.P	NOT SHOWN IN PLAN
	GANTRY
	SYMMETRICAL

CLIENT:- ADB Asian Development Bank

EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH

PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)

DESIGN CONSULTANT: ECIL In association with AA

PROJECT ROAD:- DISTRICT : SHIKARPUR - SH-01 REHABILITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI

TITLE:- GENERAL NOTES

ED.NO.	DATE	DESCRIPTION

DRAWN: F.A.S
DESIGNED: R.I / M.A
CHECKED: S.A
DATE: JUNE 2023

DRAWING NO. 2053-STR-SH01-GN-01
Scale:- 1:1
Edition.

BRIDGES

SCHEDULE OF BRIDGES

BRIDGE NO.	LATITUDE	LONGITUDE	EXISTING/ PROPOSED	EXISTING BRIDGE					DESIGN STRATEGY	PROPOSED DESIGN		
				TYPE	NO. OF SPANS	SPAN	TOTAL LENGTH	CLEAR WIDTH		NO. OF SPANS	SPAN	TOTAL LENGTH
B1	27.82008	68.65303	EXISTING	PSC	4	22.5	90	8.5	RETAINED/ REPAIR	-	-	-
B2	27.81624	68.65290	EXISTING	PSC	5	28	140	8.5	RETAINED/ REPAIR	-	-	-
B3	27.81450	68.65283	EXISTING	PSC	3	23.34	70	8.5	RETAINED/ REPAIR	-	-	-

CLIENT:-
ADB Asian Development Bank

EXECUTING AGENCY:-
WORKS AND SERVICES DEPARTMENT
GOVERNMENT OF SINDH

PROJECT:-
LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)

DESIGN CONSULTANT
ECIL
In association with

PROJECT ROAD:-
DISTRICT : SHIKARPUR - SH-01
REHABILITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI

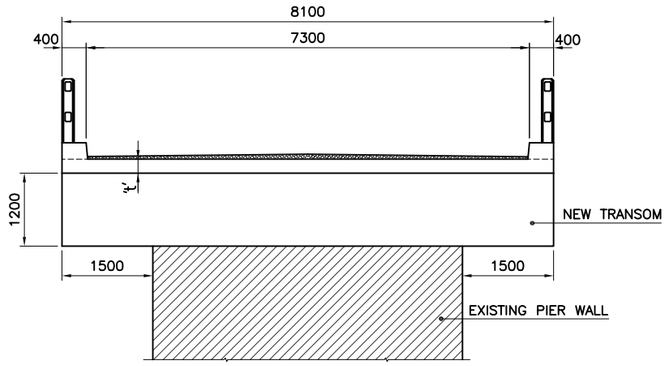
TITLE:-
SCHEDULE OF BRIDGES

ED.NO.	DATE	DESCRIPTION

DRAWN: F.A.S
DESIGNED: R.I / M.A
CHECKED: S.A
DATE: JUNE 2023

DRAWING NO. 2053-STR-SH01-BR-SCH-01
Scale:- 1:1
Edition.

BRIDGE REPAIRS
AND EXTENSION DETAILS



1 — 1
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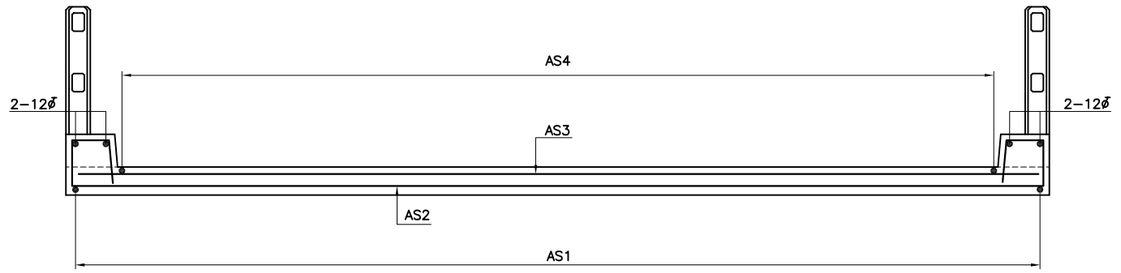

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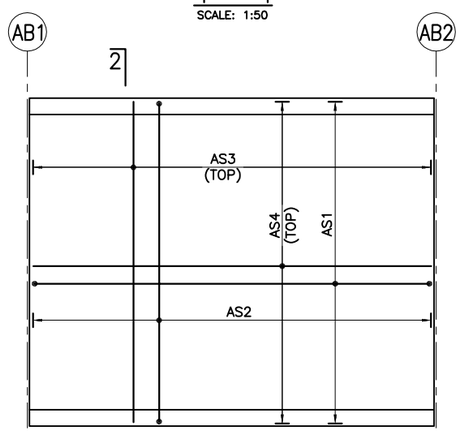
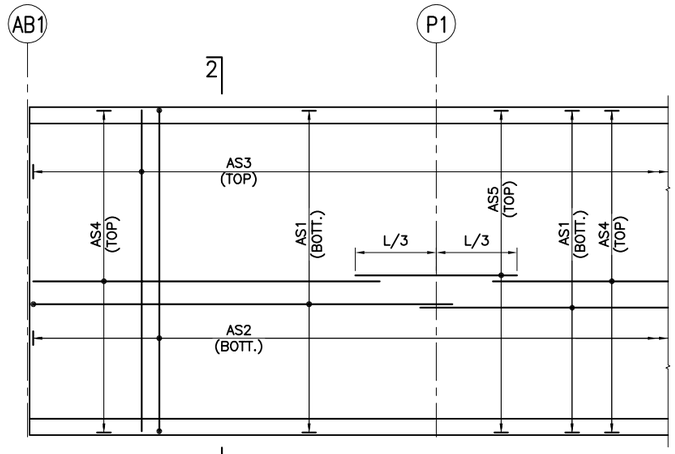


SINGLE SPAN—DECK SLAB
(REINFORCEMENT PLAN)



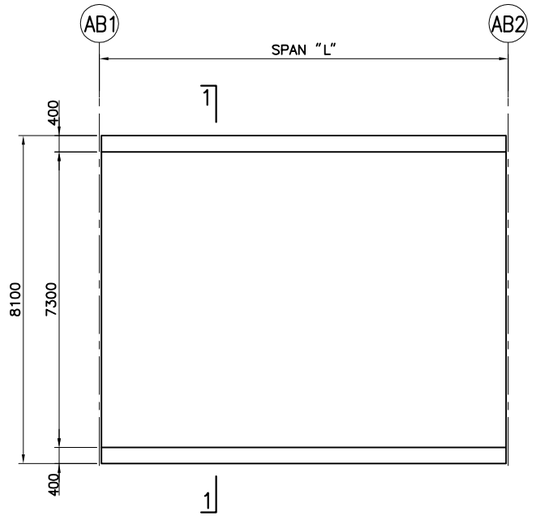
MULTIPLE CONTINUOUS SPAN—DECK SLAB
(REINFORCEMENT PLAN)

SCHEDULE OF DECK SLAB
FOR SINGLE SPAN

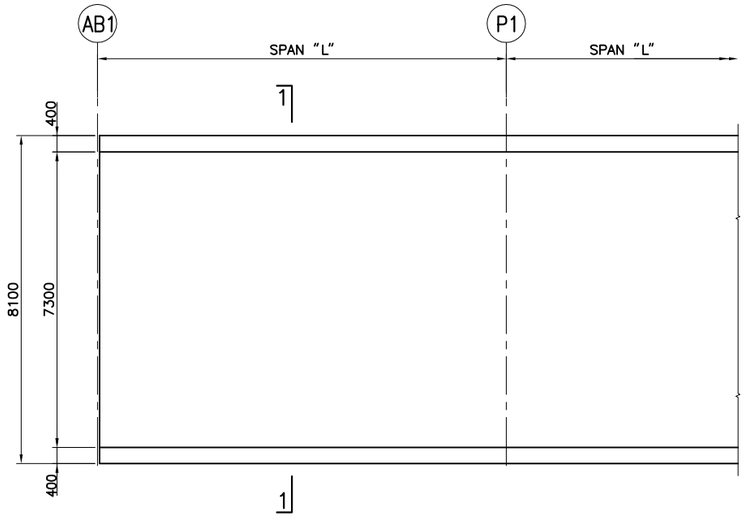
SPAN 'L'	DECK THICKENS 't'	REINFORCEMENT			
		AS1	AS2	AS3	AS4
5000	300	25ø@150	16ø@150	12ø@200	12ø@200
6000	350	25ø@125	16ø@150	12ø@200	12ø@200
7000	400	25ø@125	16ø@150	12ø@200	12ø@200
8000	450	25ø@125	16ø@150	12ø@200	12ø@200
9000	500	25ø@100	16ø@150	12ø@200	12ø@200
10000	600	25ø@100	16ø@150	12ø@200	12ø@200

SCHEDULE OF DECK SLAB FOR
MULTIPLE CONTINUOUS SPAN

SPAN 'L'	DECK THICKENS 't'	REINFORCEMENT				
		AS1	AS2	AS3	AS4	AS5
5000	300	20ø@125	16ø@150	12ø@150	12ø@125	20ø@125
6000	350	20ø@125	16ø@150	12ø@150	12ø@125	20ø@125
7000	400	25ø@150	16ø@150	12ø@150	12ø@150	25ø@150
8000	450	25ø@150	16ø@150	12ø@150	12ø@150	25ø@150
9000	500	25ø@150	16ø@150	12ø@150	12ø@150	25ø@150
10000	600	25ø@150	16ø@150	12ø@150	12ø@150	25ø@150



SINGLE SPAN—DECK SLAB
(WITHOUT BEAMS)

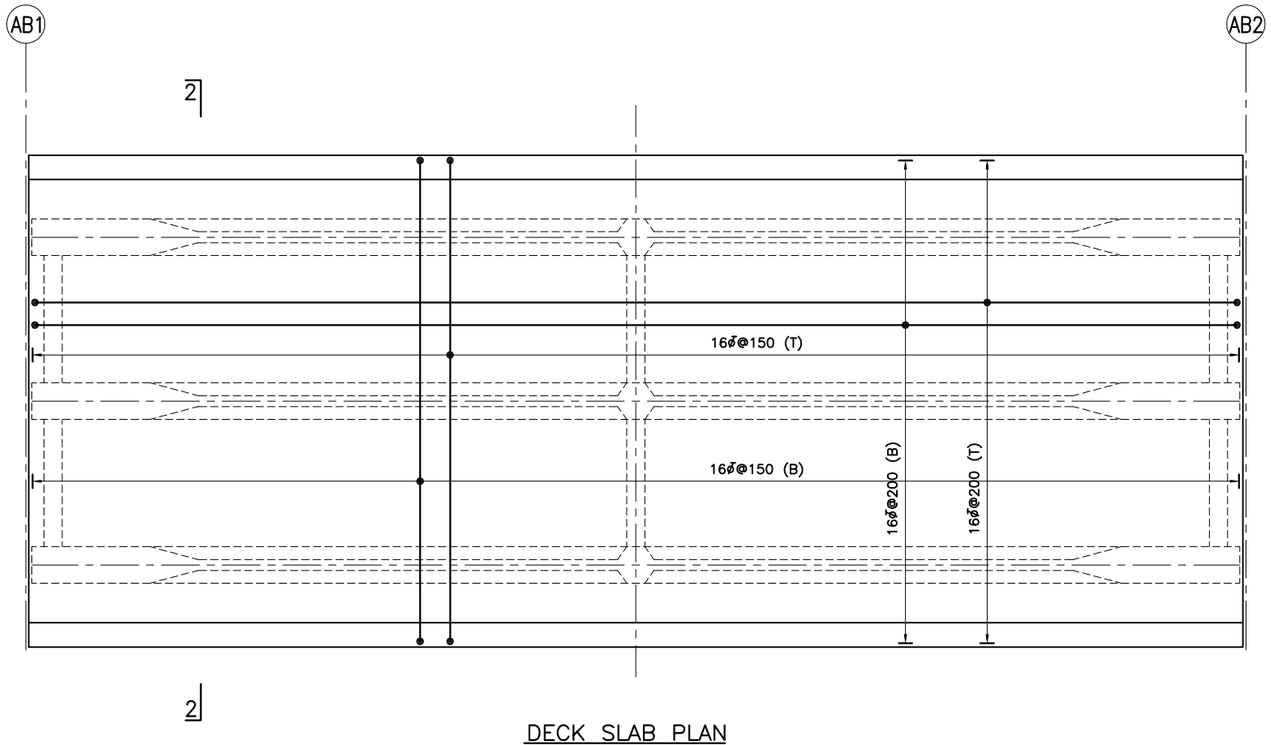


MULTIPLE CONTINUOUS SPAN—DECK SLAB
(WITHOUT BEAMS)

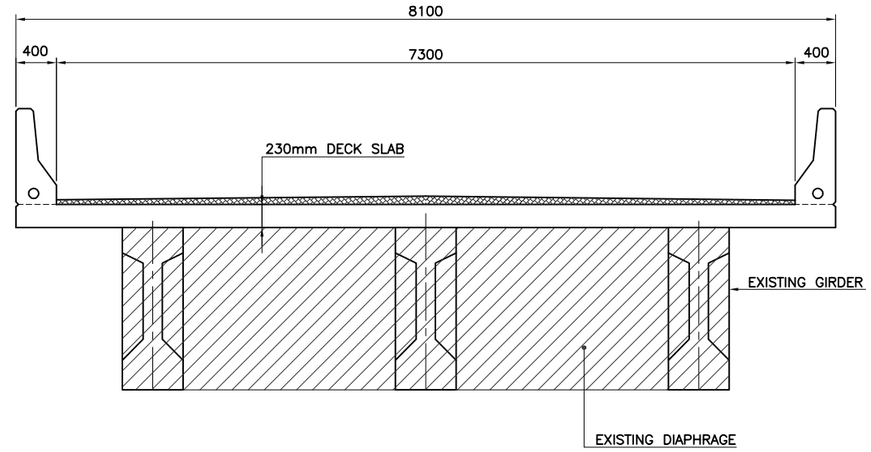
NOTES:—

1— EXISTING SUPERSTRUCTURE IS TO BE REMOVED & RECAST WITH NEW ARRANGEMENT AS SHOWN
2— THIS DRAWING IS VALID FOR DECK SLAB WITHOUT BEAMS & SPANS UPTO 10M.

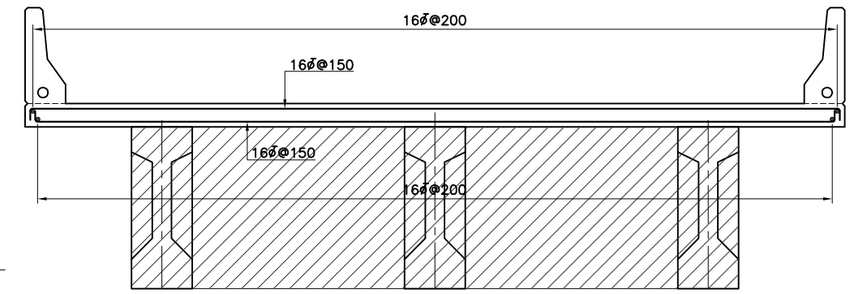
CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with	PROJECT ROAD:- DISTRICT : SHIKARPUR - SH-01 REHABILITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI TITLE:- TYPICAL DECK SLAB REPLACEMENT DETAILS FOR SPAN UPTO 10M (W/O BEAMS)	ED.NO.	DATE	DESCRIPTION	DRAWN: F.A.S DESIGNED: R.I / M.A CHECKED: S.A DATE: JUNE 2023	DRAWING NO. 2053-STR-SH01-BR-R-01 Scale:- 1:75 Edition.



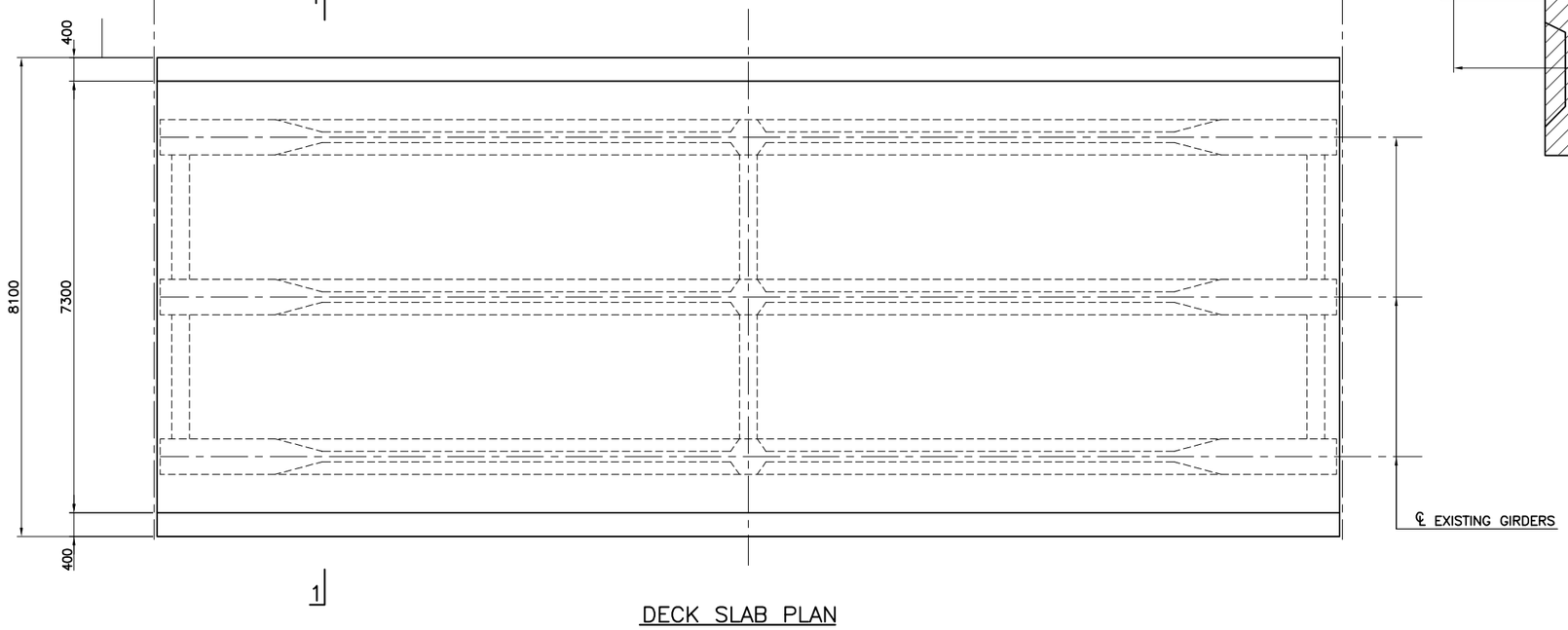
DECK SLAB PLAN
(REINFORCEMENT PLAN)



1 – 1
SCALE: 1:30



2 – 2
SCALE: 1:30



DECK SLAB PLAN

LEGENDS

NEW STRUCTURE

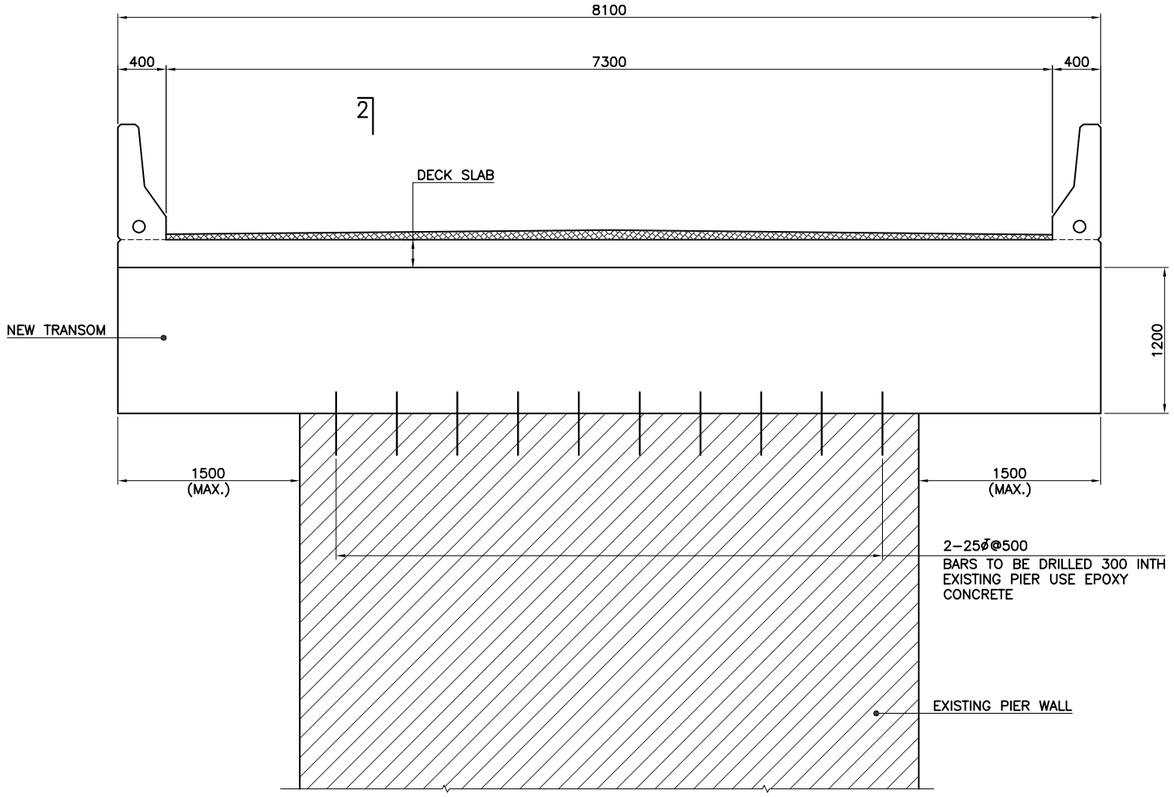
EXISTING STRUCTURE

NOTES:–

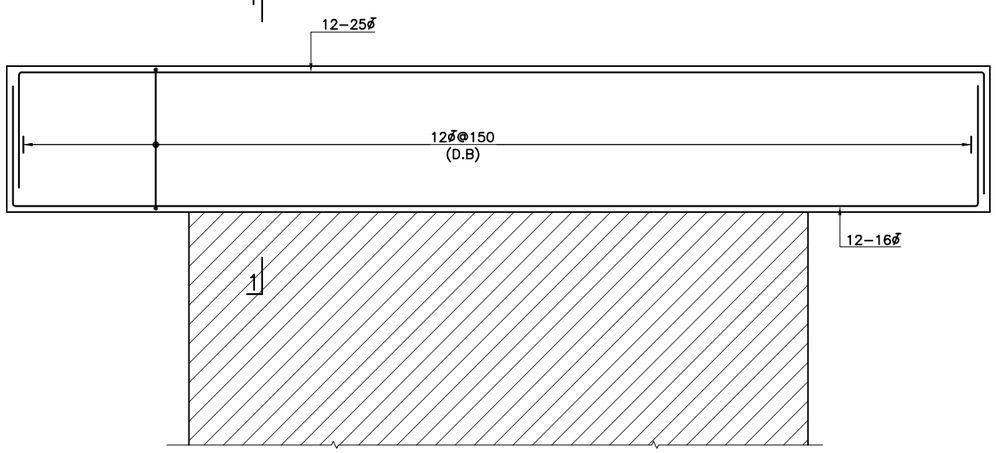
1– EXISTING SUPERSTRUCTURE IS TO BE REMOVED & RECAST WITH NEW ARRANGEMENT AS SHOWN

2– THIS DRAWING IS VALID FOR DECK SLAB WITH BEAMS.

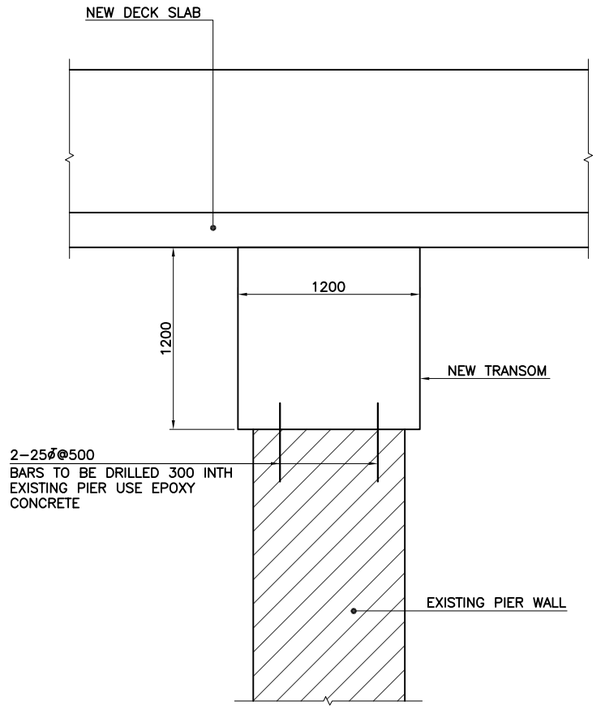
CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with AA	PROJECT ROAD:- DISTRICT : SHIKARPUR - SH-01 REHABILITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI TITLE:- TYPICAL DECK SLAB REPLACEMENT DETAILS FOR SPAN >10M (WITH GIRDERS)	ED.NO.	DATE	DESCRIPTION	DRAWN: F.A.S DESIGNED: R.I / M.A CHECKED: S.A DATE: JUNE 2023	DRAWING NO. 2053-STR-SH01-BR-R-02 Scale:- 1:50 Edition.



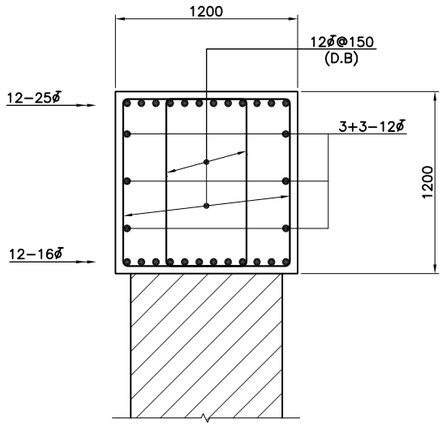
TYP. ELEVATION OF TRANSOM
(DIMENSIONAL DETAILS)



TYP. ELEVATION OF TRANSOM
(REINFORCEMENT DETAILS)



2 – 2
SCALE: 1:30



1 – 1
SCALE: 1:20

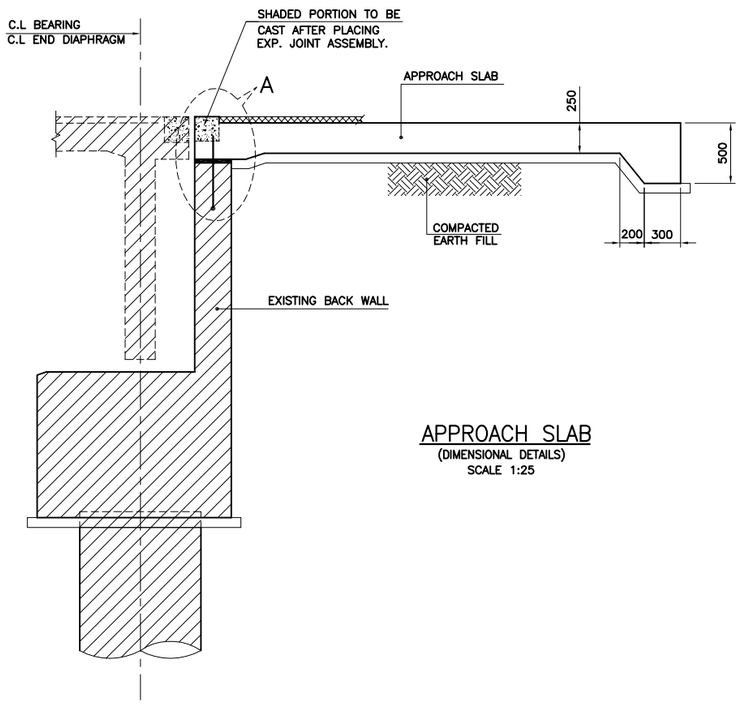
NOTES:–

1– EXISTING SUPER STRUCTURE IS TO BE REMOVED & RECAST WITH NEW ARRANGEMENT AS SHOWN.

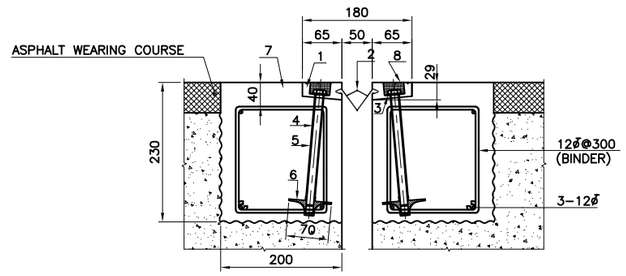
2– INSPECT & CHECK THE SOUNDNESS OF EXISTING ABUTMENT & PIER, IF ANY DEFICIENCY FOUND, IMMEDIATELY REPORT TO THE ENGINEER.

CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with AA	PROJECT ROAD:- DISTRICT : SHIKARPUR - SH-01 REHABILITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI TITLE:- TYPICAL TRANSOM REPLACEMENT DETAILS AT EXISTING WALL TYPE PIERS	ED.NO.	DATE	DESCRIPTION	DRAWN: F.A.S DESIGNED: R.I / M.A CHECKED: S.A DATE: JUNE 2023	DRAWING NO. 2053-STR-SH01--BR-R-03 Scale:- 1:25 Edition.

I - REPLACEMENT OF DAMAGED APPROACH SLAB

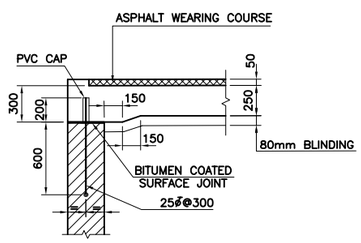


APPROACH SLAB
(DIMENSIONAL DETAILS)
SCALE 1:25

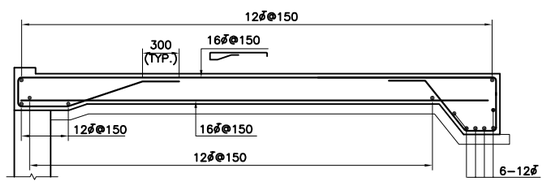


EXPANSION JOINT DETAIL
FREYSSINET CIPEC (WOSd 50) OR APPROVED EQUIVALENT WITH TENSION BOLTS.
SCALE 1:5

1– EXTRUDED ALUMINIUM ALLOY SECTION.
2– NEOPRENE GLAND (ELASTOMERIC PROFILE)
3– WASHER.
4– STRUCTURAL ANCHOR BOLT M12x200mm HSS GALVANIZED BOLT.
5– PVC PROTECTION SHEATH.
6– ANCHORING PIECE.
7– CONCRETE CAST AFTER SETTING IN PLACE THE JOINT.
8– EPOXY FILL–FOSROC NITOSEAL 290 OR APPROVED EQUIVALENT.



DETAIL A
SCALE: 1:25



APPROACH SLAB
(REINFORCEMENT DETAILS)
SCALE 1:25

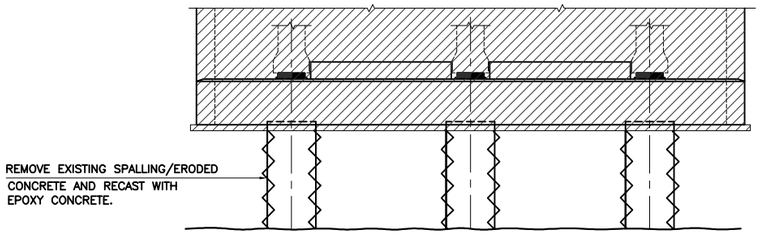
LEGEND:

EXISTING

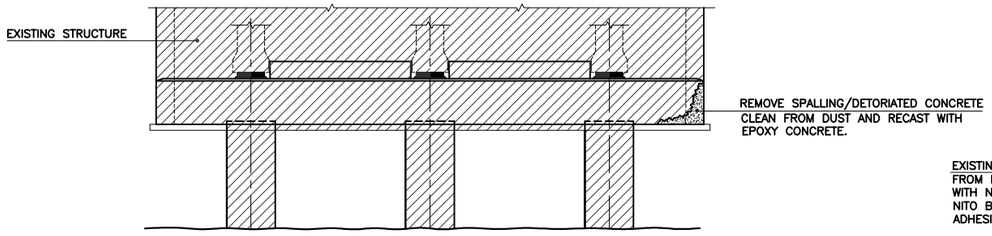
NEW

CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with AA	PROJECT ROAD:- DISTRICT : SHIKARPUR - SH-01 REHABILITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI TITLE:- TYPICAL REPAIR DETAILS (SHEET 1 OF 2)	ED.NO.	DATE	DESCRIPTION	DRAWN: F.A.S DESIGNED: R.I / M.A CHECKED: S.A DATE: JUNE 2023	DRAWING NO. 2053-STR-SH01-BR-R-04 Scale:- 1:150 Edition.

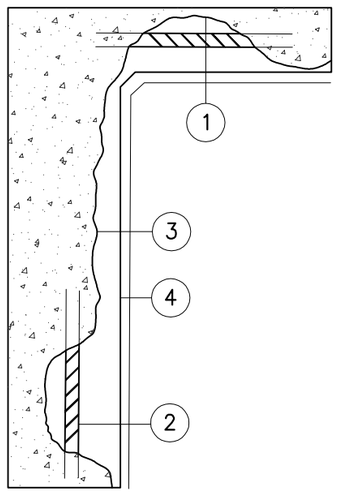
III - ERODED CONCRETE OF PILES



IV - DETERIORATED CONCRETE EDGES AND CONCRETE CORNERS

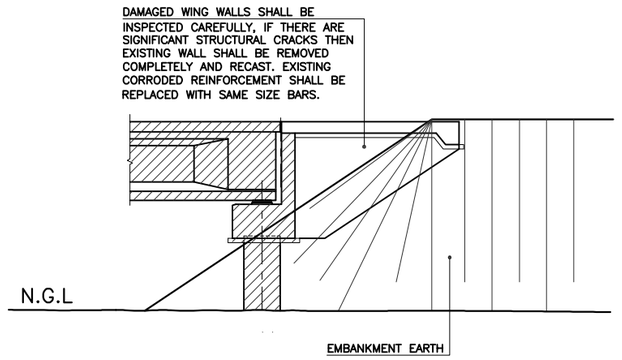


V - REPAIR OF CORROSION INDUCED CONCRETE

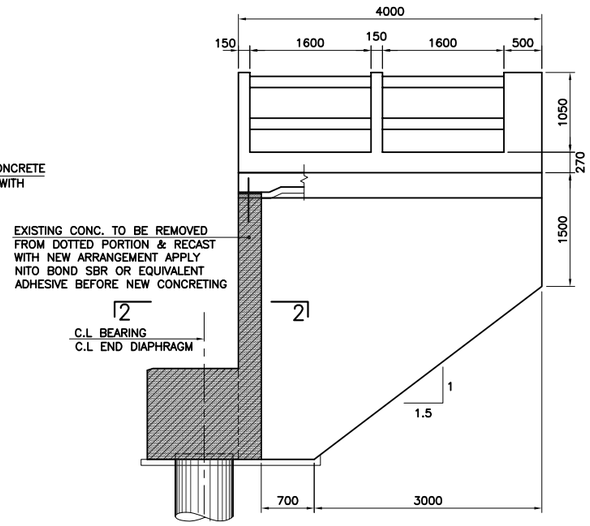


1. CUT BACK TO SOUND DENSE CONCRETE EXPOSING THE BACK OF THE STEEL AND TO FULL EXTENT OF CORROSION.
2. REMOVE ALL CORROSION FROM STEEL REPLACING WITH NEW STEEL IF DIRECTED BY THE ENGINEER. APPLY A SINGLE COAT OF CEILCOTE ZINC RICH PRIMER TO THE REPARED STEEL.
3. SATURATE CONCRETE WITH CLEAN WATER AND BRUSH APPLY BONDING AGENT.
4. MIX A STRUCTURAL REPAIR MORTAR & ADD A WATER REDUCING AGENT CONTAINING SYNTHETIC POLYMER AND APPLY BY TROWEL OR MACHINE IN LAYERS OF 15–40mm. ENSURE MORTAR IS WELL COMPACTED INTO THE SUBSTRATE WHEN APPLIED.
5. CURE THE SURFACE ADEQUATELY.

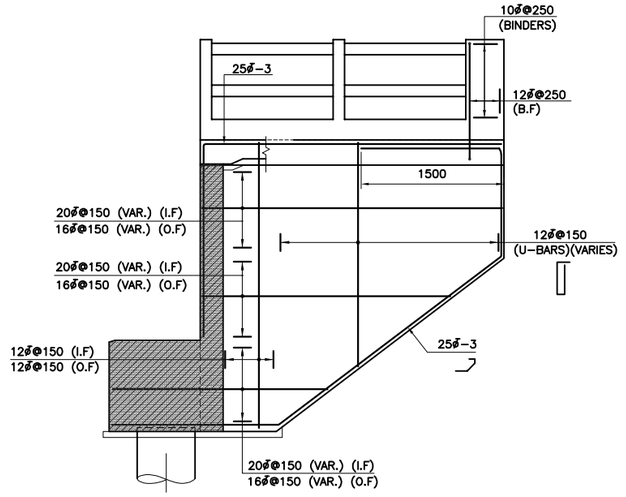
VI - DAMAGED WING WALL



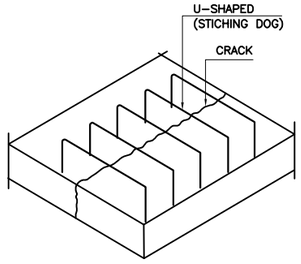
WING WALL



WING WALL
(FOR DIMENSIONAL DETAILS)



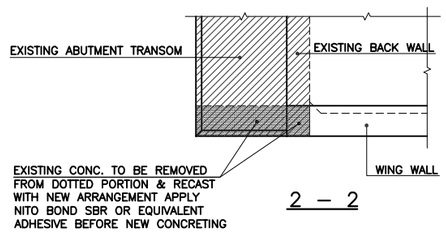
WING WALL
(FOR REINFORCEMENT)



REPAIR OF CONCRETE CRACKS

REPAIR OF CONCRETE CRACKS

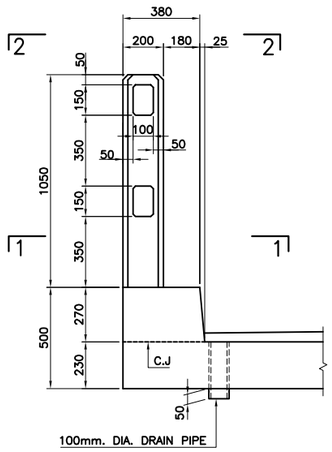
- FINE CRACKS SHALL BE FILLED UP WITH INJECTION RESINS. SUCH AN CONCRESIVE 1300 SERIES OR ANY EQUIVALENT USING INJECTION SYSTEM.
- OTHER CRACKS SHALL BE ROUTED OUT BY CUTTING GROOVES AND FILLED UP WITH NON–SHRINK GROUT OF PLASTIC CONSISTANCY.
- ACTIVE CRACKS SHALL BE BRIDGED WITH "U" SHAPED STEEL BARS AS SHOWN, BEFORE BEING REPAIRED WITH APPROVED QUALITY MATERIAL.



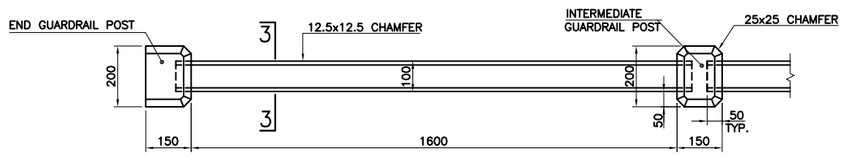
NOTE:

1 – FOR THIS DRAWING MUST BE READ IN CONJUNCTION REFER DWG. NO. 2053–STR–SH01–BR–R–04.

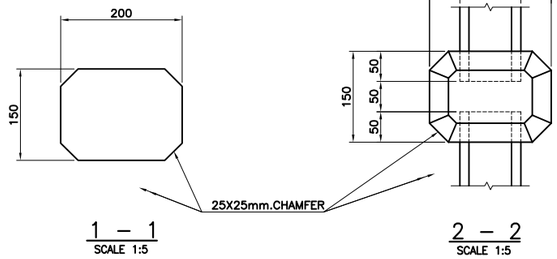
CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with AA	PROJECT ROAD:- DISTRICT : SHIKARPUR - SH-01 REHABILITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI TITLE:- TYPICAL REPAIR DETAILS (SHEET 2 OF 2)	ED.NO.	DATE	DESCRIPTION	DRAWN: F.A.S DESIGNED: R.I / M.A CHECKED: S.A DATE: JUNE 2023	DRAWING NO. 2053-STR-SH01-BR-R-05 Scale:- 1:200 Edition.



PRECAST GUARDRAILS
(DIMENSIONAL DETAIL)
SCALE 1:15

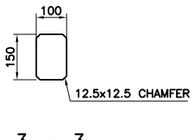


PLAN
(SHOWING GUARDRAIL AND POST)
SCALE 1:10

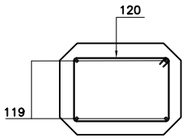


1 – 1
SCALE 1:5

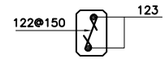
2 – 2
SCALE 1:5



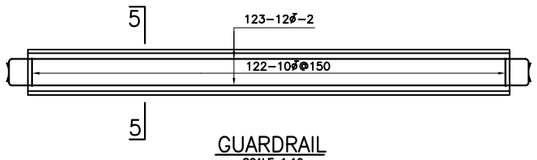
3 – 3
SCALE 1:10



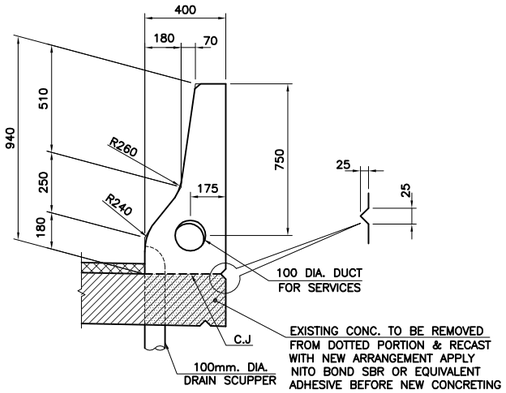
4 – 4
SCALE 1:5



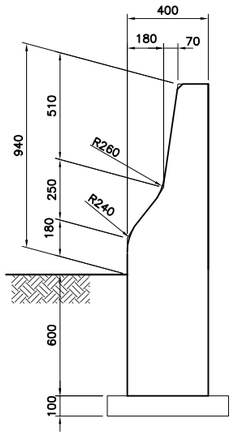
5 – 5
SCALE 1:10



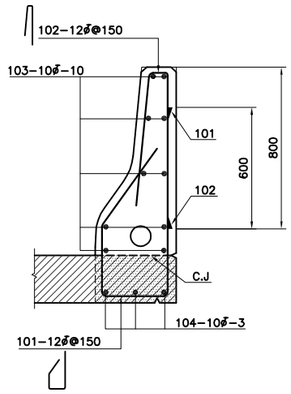
GUARDRAIL
SCALE 1:10



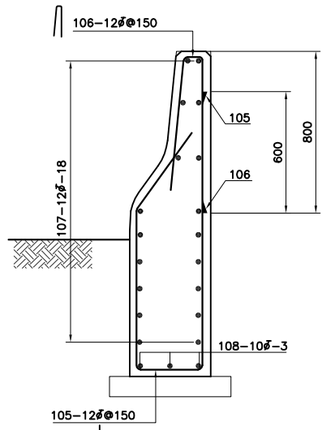
END BARRIER
(DIMENSIONAL DETAIL)
SCALE 1:15



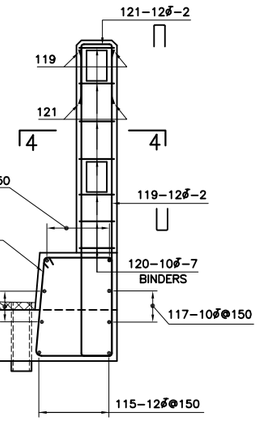
END BARRIER
(DIMENSIONAL DETAIL)
SCALE 1:15



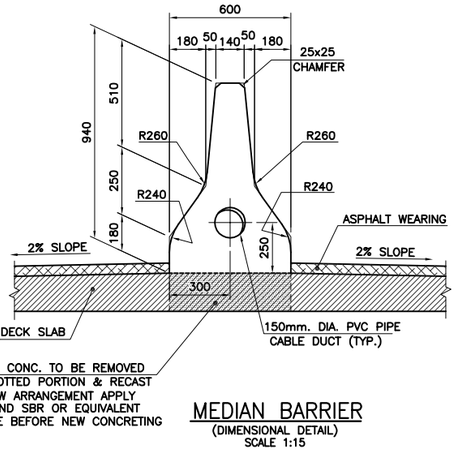
END BARRIER
(REINFORCEMENT DETAIL)
SCALE 1:15



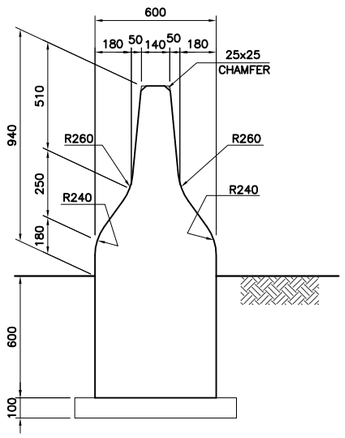
END BARRIER
(REINFORCEMENT DETAIL)
SCALE 1:15



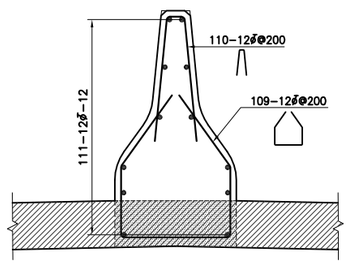
PRECAST GUARDRAILS
(REINFORCEMENT DETAIL)
SCALE 1:15



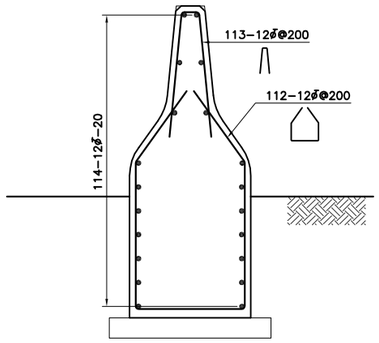
MEDIAN BARRIER
(DIMENSIONAL DETAIL)
SCALE 1:15



MEDIAN BARRIER
(DIMENSIONAL DETAIL)
SCALE 1:15



MEDIAN BARRIER
(REINFORCEMENT DETAIL)
SCALE 1:15

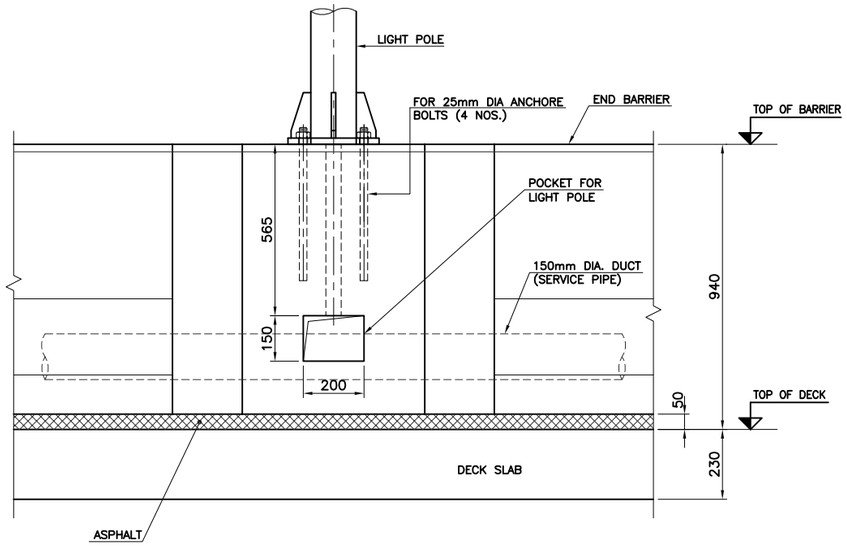


MEDIAN BARRIER
(REINFORCEMENT DETAIL)
SCALE 1:15

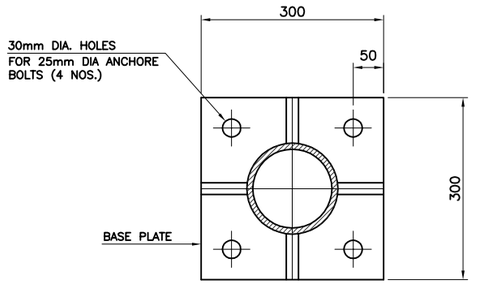
CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with AA	PROJECT ROAD:- DISTRICT : SHIKARPUR - SH-01 REHABILITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI TITLE:- TYPICAL PRECAST GUARDRAILS END BARRIER MEDIAN BARRIER DETAILS

ED.NO.	DATE	DESCRIPTION

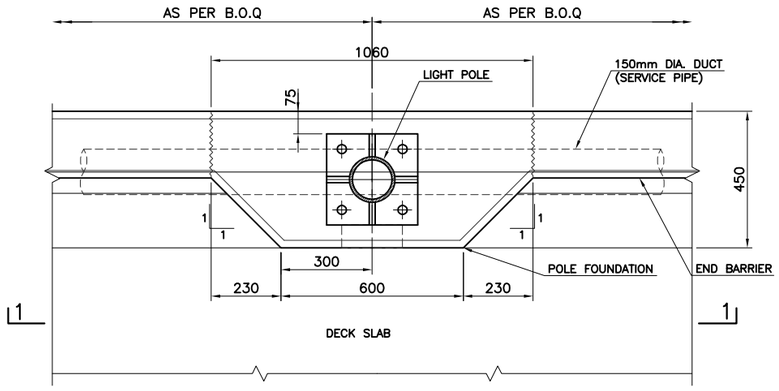
DRAWN: F.A.S	DRAWING NO. 2053-STR-SH01-BR-R-06
DESIGNED: R.I / M.A	Scale:- 1:50
CHECKED: S.A	Edition.
DATE: JUNE 2023	



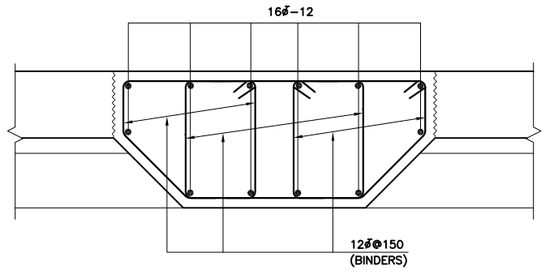
1 – 1



PLAN
SCALE 1:5



PLAN AT LIGHTING POLE



PLAN AT LIGHTING POLE
(REINFORCEMENT DETAILS)

NOTE:

1 – THIS DRAWING MUST BE READ IN CONJUNCTION WITH RELEVANT HIGHWAYS DWGS.

CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with	PROJECT ROAD:- DISTRICT : SHIKARPUR - SH-01 REHABILITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI TITLE:- ELECTRICAL POLE FIXING DETAILS	ED.NO.	DATE	DESCRIPTION	DRAWN: F.A.S DESIGNED: R.I / M.A CHECKED: S.A DATE: JUNE 2023	DRAWING NO. 2053-STR-SH01-BR-R-07 Scale:- 1:10 Edition.

CULVERTS

SCHEDULE OF CULVERTS

CULVERT NO.	LATITUDE	LONGITUDE	EXISTING/ PROPOSED	EXISTING CULVERT			DESIGN STRATEGY	PROPOSED DESIGN			
				NO. OF CELLS	WIDTH/ DIA	HEIGHT		TYPE	NO. OF CELLS	WIDTH/ DIA	HEIGHT
C1	27.82416	68.63979	EXISTING	1	1	1.5	REPLACE WITH NEW	BOX	1	1.5	1.5
C2	27.82282	68.64920	EXISTING	1	1	1	REPLACE WITH NEW	BOX	1	1.5	1.5
C3	27.80754	68.65816	EXISTING	1	1	1	REPLACE WITH NEW	BOX	1	1.5	1
C4	27.80491	68.65922	EXISTING	1	1	1	REPLACE WITH NEW	BOX	1	1	1
C5	27.80242	68.66070	EXISTING	1	1	1	REPLACE WITH NEW	BOX	1	1	1
C6	27.80034	68.66331	EXISTING	1	1	1	REPLACE WITH NEW	BOX	1	1	1
C7	27.80003	68.66598	EXISTING	1	1	1.5	REPLACE WITH NEW	BOX	1	1.5	1.5
C8	27.80016	68.66793	EXISTING	1	1	1	REPLACE WITH NEW	BOX	1	1	1
C9	27.80019	68.66846	EXISTING	1	1	1	REPLACE WITH NEW	BOX	1	1	1
C10	27.80030	68.67063	EXISTING	1	1	1	REPLACE WITH NEW	BOX	1	1	1
C11	27.79738	68.67599	EXISTING	1	1	1.5	REPLACE WITH NEW	BOX	1	1.5	1.5
C12	27.80045	68.67341	EXISTING	1	1	1	REPLACE WITH NEW	BOX	1	1	1
C13	27.80053	68.67511	EXISTING	1	1	1	REPLACE WITH NEW	BOX	1	1	1
C14	27.80076	68.67800	EXISTING	1	0.5	1	REPLACE WITH NEW	BOX	1	1	1
C15	27.80110	68.68626	EXISTING	1	1	3	REPLACE WITH NEW	BOX	1	2	3
C16	27.79964	68.66394	EXISTING	1	1	1.5	REPLACE WITH NEW	BOX	1	1.5	1.5
C17	27.79635	68.65994	EXISTING	1	1	1	REPLACE WITH NEW	BOX	1	1.5	1
C18	27.79845	68.65912	EXISTING	1	1	1	REPLACE WITH NEW	BOX	1	1	1
C19	27.79913	68.65220	EXISTING	1	1	1	REPLACE WITH NEW	BOX	1	1	1
C20	27.79814	68.64959	EXISTING	1	1	1	REPLACE WITH NEW	BOX	1	1	1
C21	27.79871	68.64735	EXISTING	1	1	1	REPLACE WITH NEW	BOX	1	1	1
C22	27.79927	68.64681	EXISTING	1	1	1	REPLACE WITH NEW	BOX	1	1.5	1
C23	27.79765	68.64417	EXISTING	1	1	1	REPLACE WITH NEW	BOX	1	1	1

NOTES:–

1– THIS DRAWING MUST BE READ IN CONJUNCTION WITH RELEVANT HIGHWAY DRAWINGS.

2– ALL LEVELS SHALL BE VERIFIED AT SITE BEFORE EXECUTION.

3– LEVELS, LENGTHS & SKEWS MAY BE ADJUSTED AS PER SITE CONDITIONS DURING LEVELS ADJUSTMENTS, IF FILL HEIGHT VARIES SIGNIFICANTLY FOR WHICH THE STRUCTURE IS DESIGNED, NOTIFY ENGINEER.

CLIENT:- ADB Asian Development Bank

EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH

PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)

DESIGN CONSULTANT: ECIL In association with AA

PROJECT ROAD:- DISTRICT : SHIKARPUR - SH-01 REHABILITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI

TITLE:- SCHEDULE OF CULVERTS

ED.NO.	DATE	DESCRIPTION

DRAWN: F.A.S

DESIGNED: R.I / M.A

CHECKED: S.A

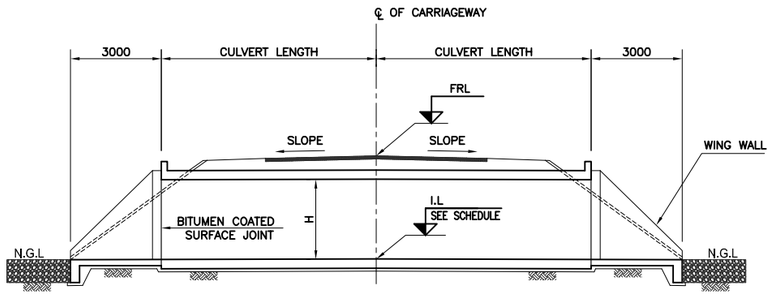
DATE: JUNE 2023

DRAWING NO. 2053-STR-SH01-CU-SCH-01

Scale:- 1:100

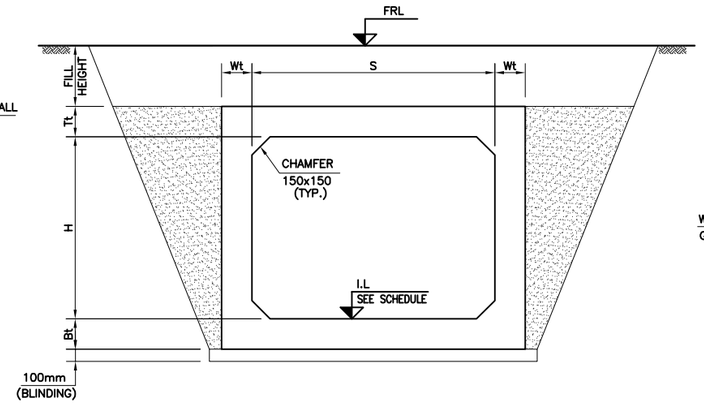
Edition.

BOX CULVERTS



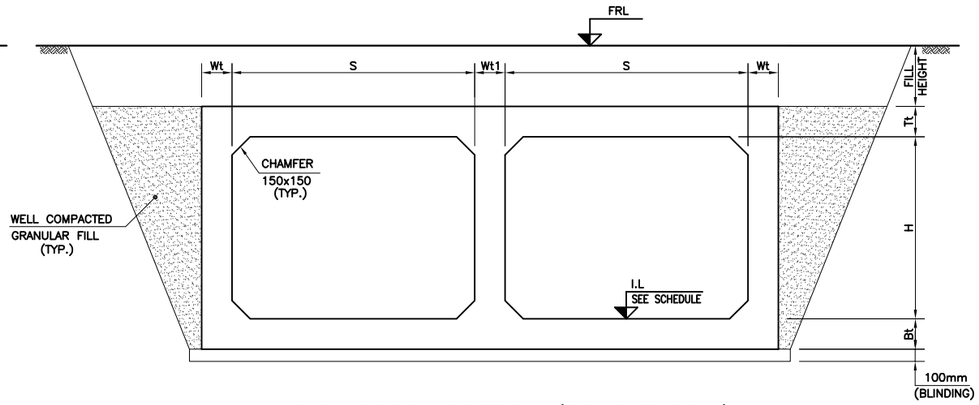
LONGITUDINAL SECTION AT C.L. OF CULVERT

(FOR ROAD X-SECTION REFER RELEVANT ROADWAY DRAWINGS)



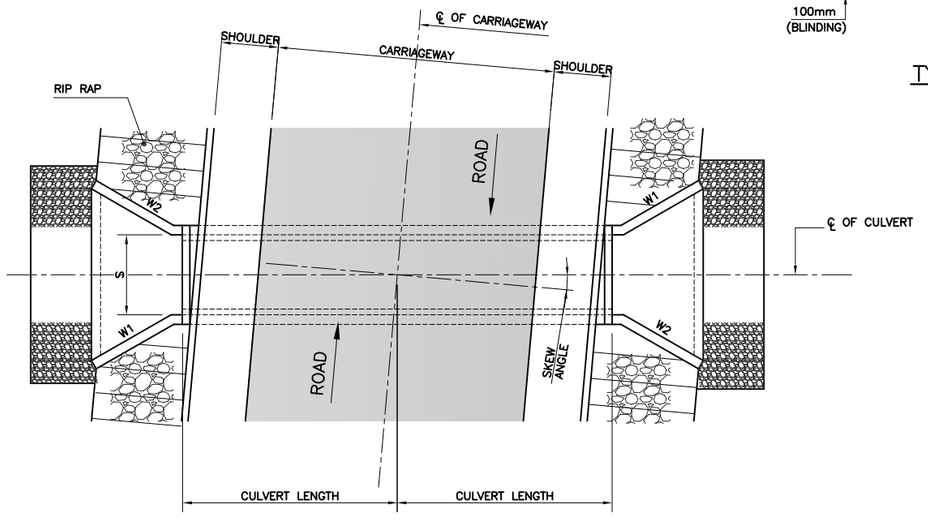
TYP. CROSS SECTION (SINGLE CELL)

SCALE 1:25

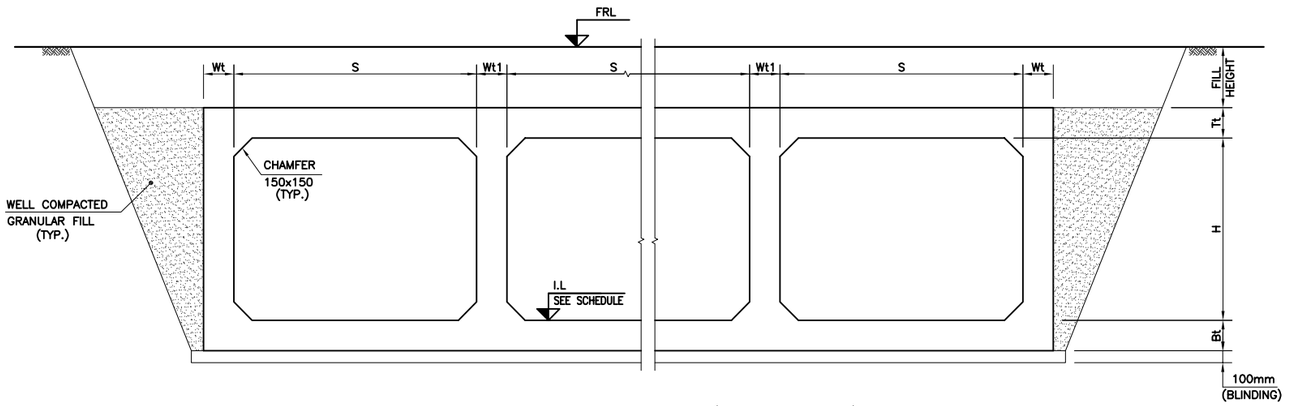


TYP. CROSS SECTION (DOUBLE CELL)

SCALE 1:25

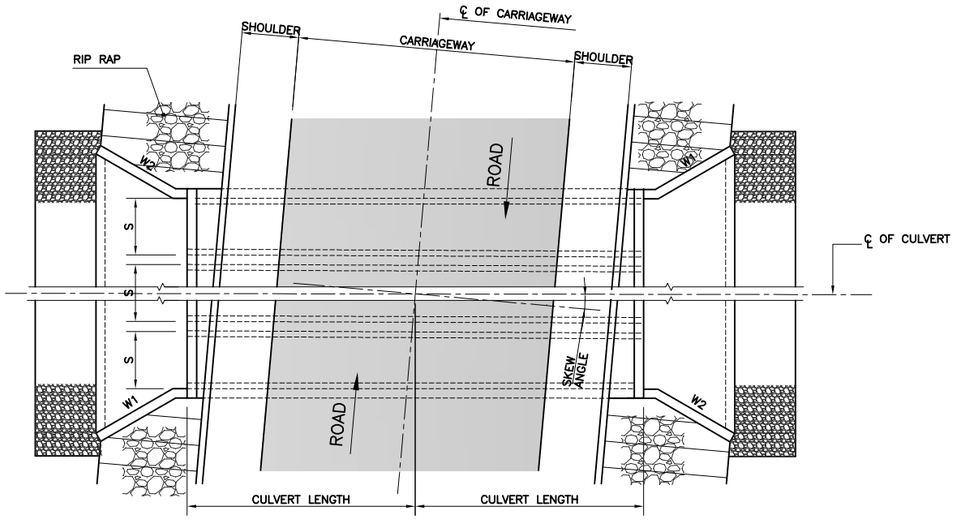


PLAN (SINGLE CELL)

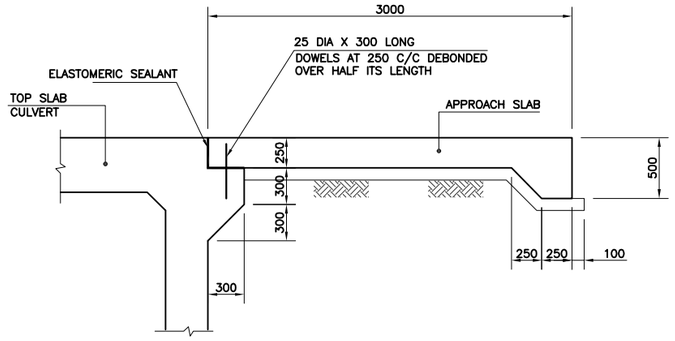


TYP. CROSS SECTION (MULTI CELL)

SCALE 1:25



PLAN (MULTI CELL)



TYP. DETAIL OF APPROACH SLAB

FOR FILL HEIGHT ⩽ 1000mm

SCALE 1:25

NOTES:-

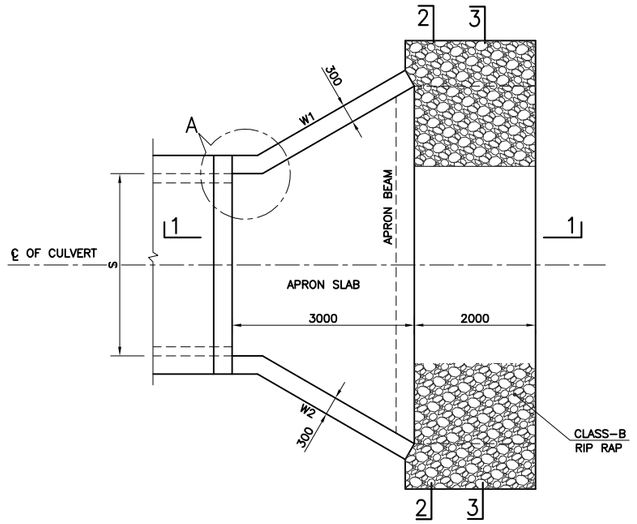
1 – THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT HIGHWAY DRAWING.

2 – FOR ROAD X-SECTION AND LOCATION REFER RELEVANT ROADWAY PLAN AND PROFILE DRAWINGS.

3 – LEVELS MAY BE ADJUSTED AS PER SITE CONDITIONS. DURING LEVEL ADJUSTMENTS, IF FILL HEIGHT VARIES SIGNIFICANTLY FOR WHICH THE STRUCTURE IS DESIGNED, NOTIFY ENGINEER.

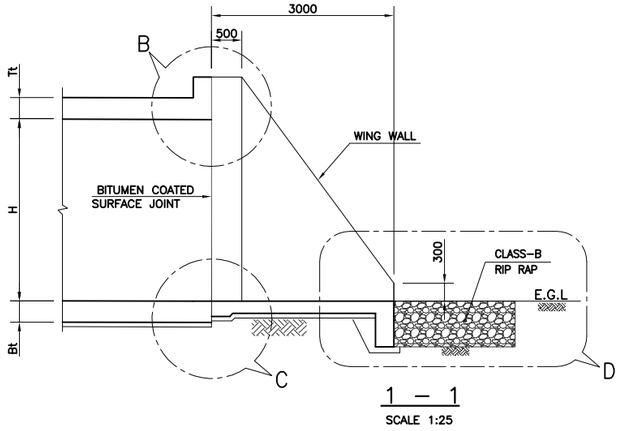
4 – LENGTH OF CULVERT, WINGWALL AND WINGWALL INCLINATION SHALL BE ADJUSTED AS PER SITE REQUIRMENTS.

CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with	PROJECT ROAD:- DISTRICT : SHIKARPUR - SH-01 REHABILITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI TITLE:- RCC BOX CULVERT GENERAL ARRANGEMENT	ED.NO.	DATE	DESCRIPTION	DRAWN: F.A.S DESIGNED: R.I / M.A CHECKED: S.A DATE: JUNE 2023	DRAWING NO. 2053-STR-SH01-BC-01 Scale:- 1:100 Edition.



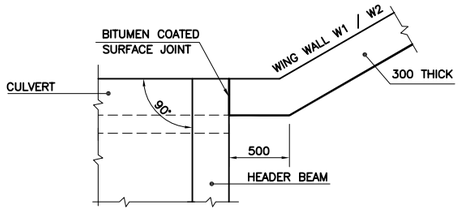
PLAN OF APRON SLAB (SINGLE CELL)

SCALE 1:50



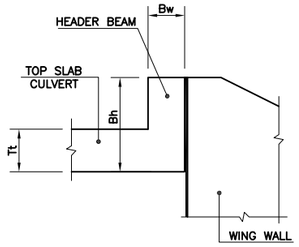
1 – 1

SCALE 1:25



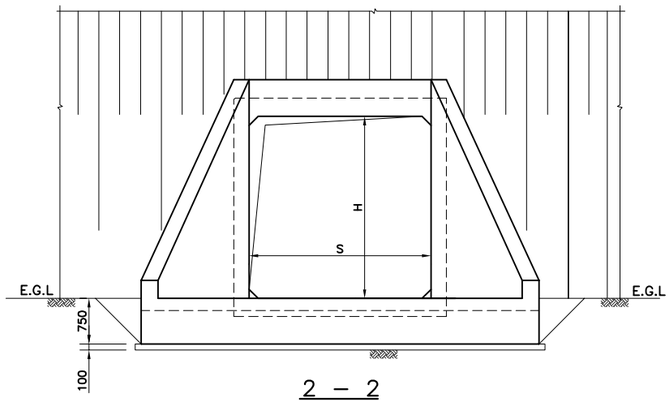
DETAIL A

SCALE 1:25



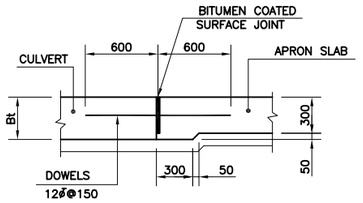
DETAIL B

SCALE 1:25



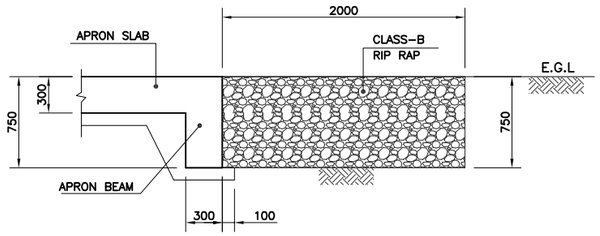
2 – 2

SCALE 1:50



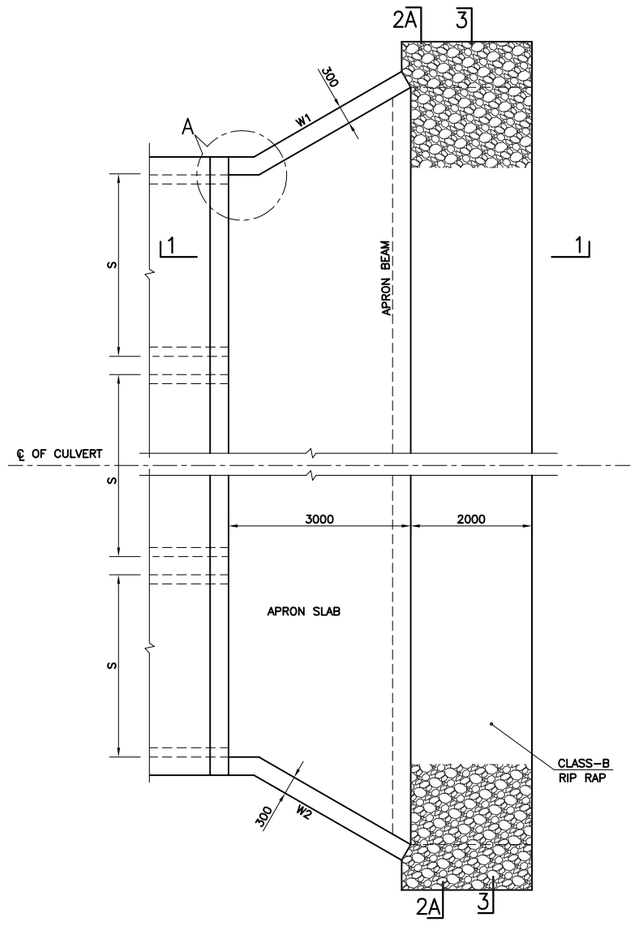
DETAIL C

SCALE 1:25



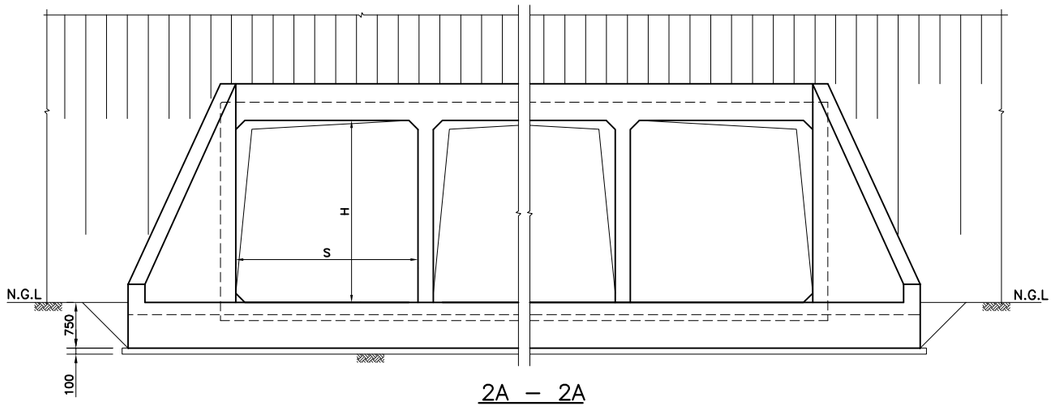
DETAIL D

SCALE 1:25



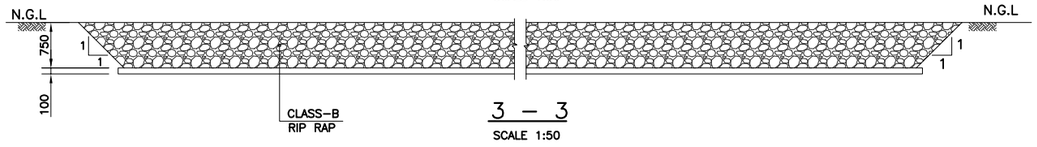
TYP. PLAN OF APRON SLAB (MULTI CELL)

SCALE 1:50



2A – 2A

SCALE 1:50



3 – 3

SCALE 1:50

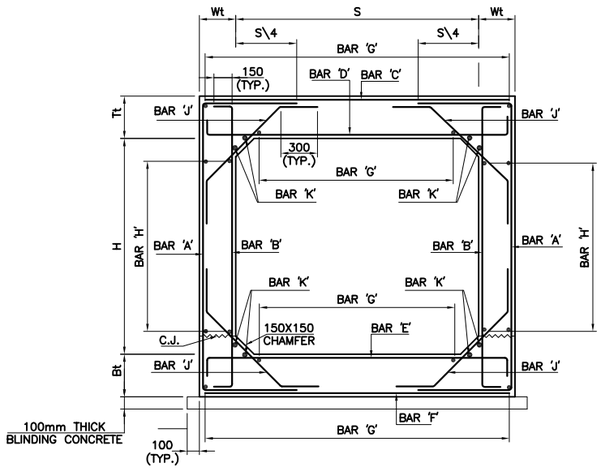
NOTES:–

1– THIS DRAWING MUST BE READ IN CONJUNCTION WITH DWG. NO. 2053–STR–SH01–01–BC–01.

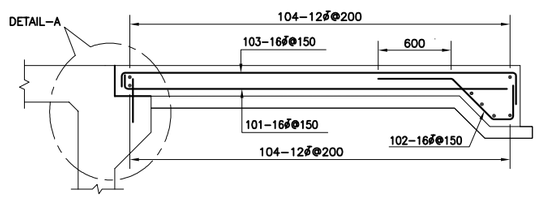
CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with AA	PROJECT ROAD:- DISTRICT : SHIKARPUR - SH-01 REHABILITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI TITLE:- RCC BOX CULVERT DETAILS OF APRON SLAB & WING WALLS	ED.NO. / DATE / DESCRIPTION	DRAWN: F.A.S DESIGNED: R.I / M.A CHECKED: S.A DATE: JUNE 2023	DRAWING NO. 2053-STR-SH01-BC-02 Scale:- 1:100 Edition.

SINGLE CELL CULVERTS

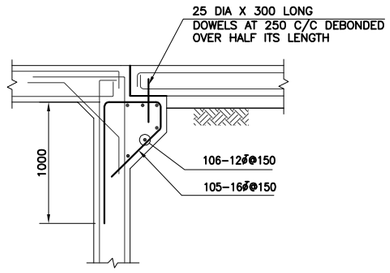
DIMENSIONS							BAR A		BAR B		Straight BAR C		BAR D		BAR E		Straight BAR F		Straight BAR G		Straight BAR H		BAR J		Straight BAR K	
NO. OF CELLS	S mm	H mm	FILL mm	Wt mm	Bt mm	Tt mm	DIA	SPACING	DIA	SPACING	DIA	SPACING	DIA	SPACING	DIA	SPACING	DIA	SPACING	DIA	SPACING	DIA	SPACING	DIA	SPACING	DIA	NO.OF BAR
1	1000	1000	300–1000	250	250	250	10ø	200	10ø	200	10ø	200	10ø	150	10ø	125	10ø	200	10ø	200	10ø	200	10ø	200	10ø	8
1	1000	1500	300–1000	250	250	250	10ø	200	10ø	200	10ø	200	10ø	125	10ø	125	10ø	200	10ø	200	10ø	200	10ø	200	10ø	8
1	1500	1000	300–1000	250	250	250	10ø	100	10ø	200	10ø	150	12ø	125	12ø	125	10ø	150	10ø	200	10ø	200	10ø	200	10ø	8
1	1500	1500	300–1000	250	250	250	10ø	100	10ø	200	10ø	150	12ø	125	12ø	125	10ø	150	10ø	200	10ø	200	10ø	200	10ø	8
1	1500	2000	300–1000	250	250	250	10ø	100	10ø	200	10ø	150	12ø	125	12ø	125	10ø	150	10ø	200	10ø	200	10ø	200	10ø	8
1	2000	1000	300–1000	300	300	300	12ø	125	10ø	150	12ø	150	12ø	100	12ø	100	12ø	150	10ø	200	10ø	200	10ø	200	10ø	8
1	2000	2500	300–1000	300	300	300	12ø	125	10ø	150	12ø	150	16ø	150	16ø	125	12ø	150	10ø	200	10ø	200	10ø	200	10ø	8
1	2000	1500	300–1000	300	300	300	12ø	125	10ø	150	12ø	150	12ø	100	12ø	100	12ø	150	10ø	200	10ø	200	10ø	200	10ø	8
1	2000	2000	300–1000	300	300	300	12ø	125	10ø	150	12ø	150	12ø	100	12ø	100	12ø	150	10ø	200	10ø	200	10ø	200	10ø	8
1	2000	3000	300–1000	300	300	300	12ø	125	12ø	125	12ø	150	16ø	150	16ø	125	12ø	150	10ø	200	10ø	200	10ø	200	10ø	8
1	2500	1000	300–1000	300	325	325	12ø	100	12ø	200	12ø	100	16ø	125	16ø	125	12ø	100	10ø	200	10ø	200	10ø	200	10ø	8
1	2500	1500	300–1000	300	325	325	12ø	100	12ø	200	12ø	100	16ø	125	16ø	125	12ø	100	10ø	200	10ø	200	10ø	200	10ø	8
1	2500	2000	300–1000	300	325	325	12ø	100	12ø	200	12ø	100	16ø	100	16ø	100	12ø	100	10ø	200	10ø	200	10ø	200	10ø	8



TYPICAL SECTION OF SINGLE CELL
SCALE 1:25



TYP. REINFORCEMENT DETAIL OF APPROACH SLAB

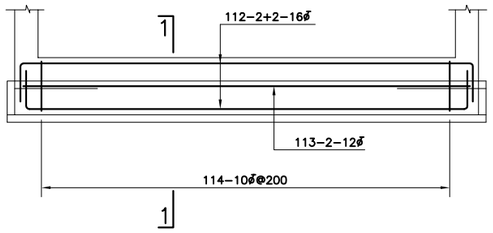


DETAIL–A
SCALE 1:25

NOTES:–

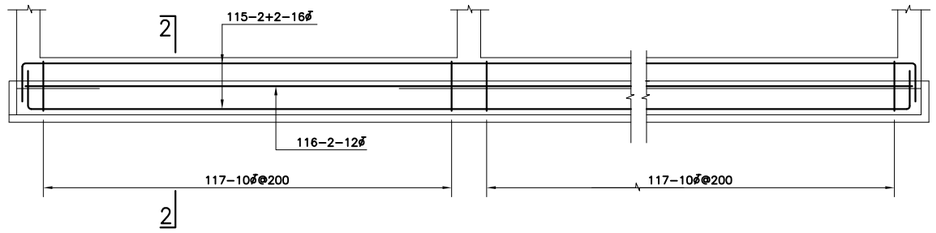
1– BAR CUT LENGTH SHALL BE IN ACCORDANCE WITH LENGTH OF CULVERT.
2– ALL STURCTURAL CONCRETE SHALL BE CLASS 'A3' CONCRETE.
3– ALL STURCTURAL REINFORCEMENT SHALL BE GRADE 60 STEEL.
4– MINIMUM COVER TO THE REINFORCEMENT SHALL BE 50mm.
5– OVERLAP LENGTH OF REBAR SHALL BE 48 x DIA OF BARS.
6– FOR CULVERTS WITH SPAN LESS THAN ANY OF THOSE SHOWN IN TABLE, USE REINFORCEMENT AND SPACING FOR NEXT GREATER SIZE SPAN.MARK NECESSARY CHANGES IN BAR LENGTH AND QUANTITIES.
7– EXPANSION JOINTS SHALL BE PROVIDED AT MAX.15m LENGTH IF NECESSARY.
8– ELASTIC ASPHALT BOARD WITH 10mm. THICKNESS AT THE JOINT OF CONCRETE SHALL BE PROVIDED.
9– DO NOT LAP BAR C & F AT SUPPORT OR WALLS & DO NOT LAP BAR D & E AT MID SPAN
10– C.J MEANS CONSTRUCTION JOINT
11– MAXIMUM DESIGN BEARING PRESSURE IS 200 Kpa. WHICH SHELL BE VARIFIED AT SITE BEFORE EXECUTION.

CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with AA	PROJECT ROAD:- DISTRICT : SHIKARPUR - SH-01 REHABILITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI TITLE:- RCC BOX CULVERT REINFORCEMENT DETAILS OF BOX CULVERT	ED.NO. / DATE / DESCRIPTION	DRAWN: F.A.S DESIGNED: R.I / M.A CHECKED: S.A DATE: JUNE 2023	DRAWING NO. 2053-STR-SH01-BC-03 Scale:- 1:100 Edition.



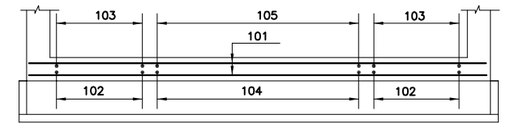
ELEV. OF APRON BEAM (SINGLE CELL)

SCALE 1:50



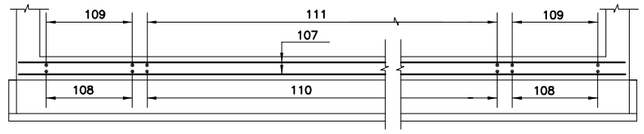
ELEV. OF APRON BEAM (MULTI CELL)

SCALE 1:50



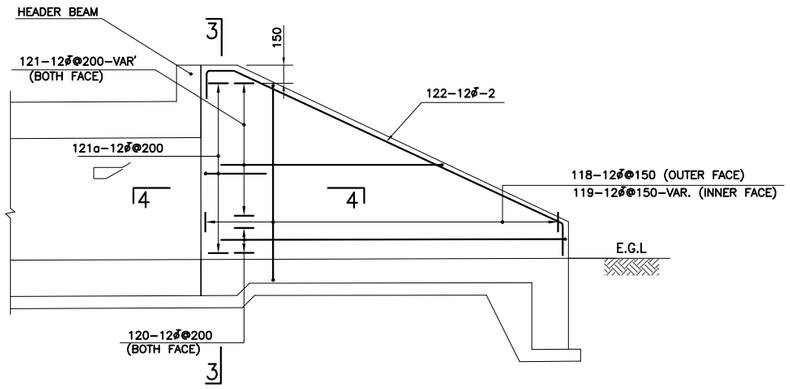
5 – 5

SCALE 1:50



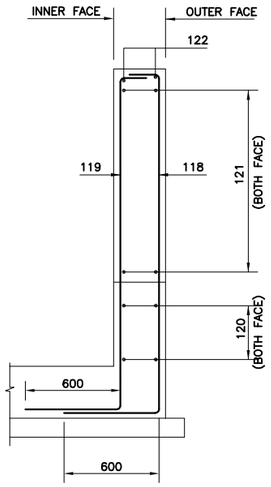
6 – 6

SCALE 1:50



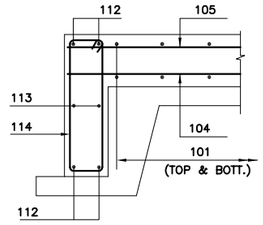
ELEVATION OF WING WALL

SCALE 1:25 (4NOS.)



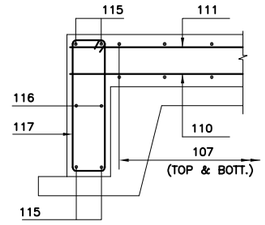
3 –3

SCALE 1:20



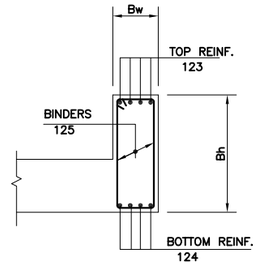
1 – 1

SCALE 1:20



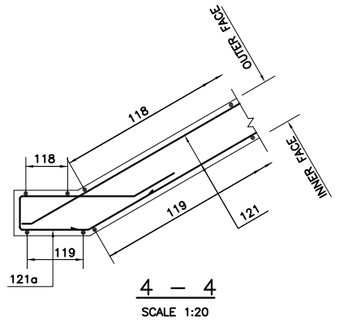
2 – 2

SCALE 1:20



HEADER BEAM

SCALE 1:20

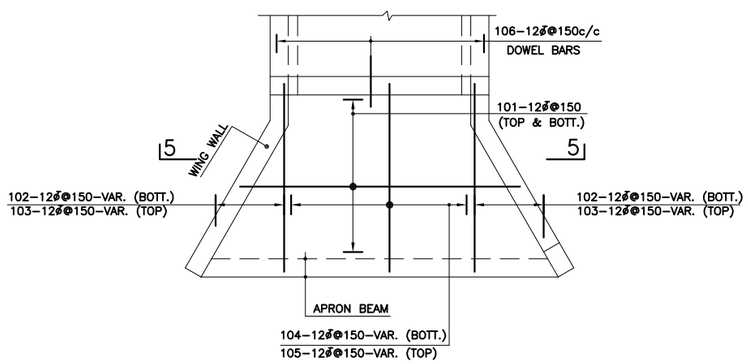


4 – 4

SCALE 1:20

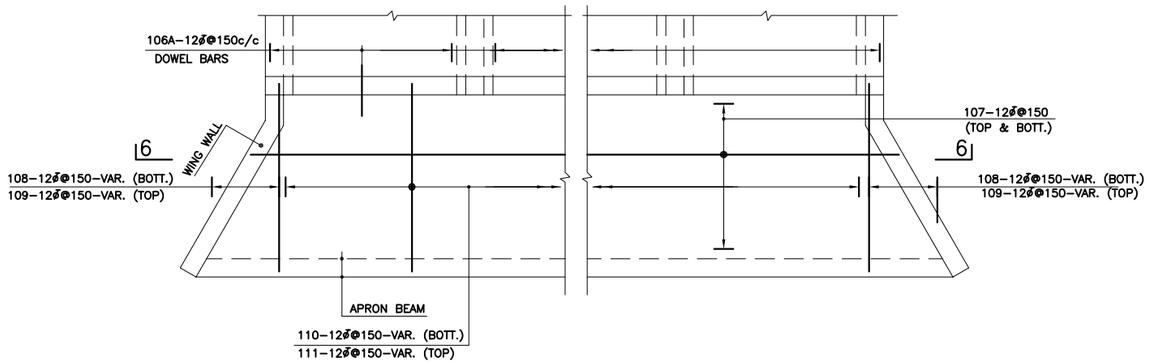
SCHEDULE OF HEADER BEAM

BEAM ID	MAX. BEAM LENGTH 'L'	BEAM SIZE		REINFORCEMENT		
		Bw	Bh	TOP (123)	BOTTOM (124)	BINDERS (125)
B1	2000	250	600	3–16ø	3–16ø	10ø@150
B2	3000	300	600	4–16ø	4–16ø	10ø@150
B3	4000	300	900	6–16ø	6–16ø	10ø@150



TYP. PLAN OF APRON SLAB (SINGLE CELL)

SCALE 1:50 (2NOS.)



TYP. PLAN OF APRON SLAB (MULTI CELL)

SCALE 1:50 (2NOS.)

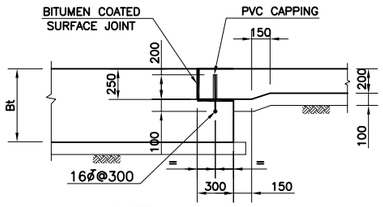
NOTES:–

1– THIS DRAWING MUST BE READ IN CONJUNCTION WITH DWG. NO. 2053–STR–SH01–BC–01, 02 & 03.

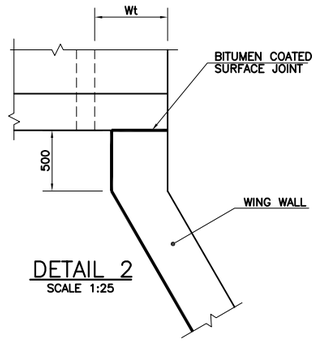
CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with AA	PROJECT ROAD:- DISTRICT : SHIKARPUR - SH-01 REHABILITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI TITLE:- RCC BOX CULVERT REINFORCEMENT DETAILS OF APRON SLAB & WING WALLS (FOR CULVERT HEIGHT ⩽ 2m)	ED.NO.	DATE	DESCRIPTION	DRAWN: F.A.S DESIGNED: R.I / M.A CHECKED: S.A DATE: JUNE 2023	DRAWING NO. 2053-STR-SH01-BC-04 Scale:- 1:100 Edition.

TABLE–01: SCHEDULE OF RCC WING WALL

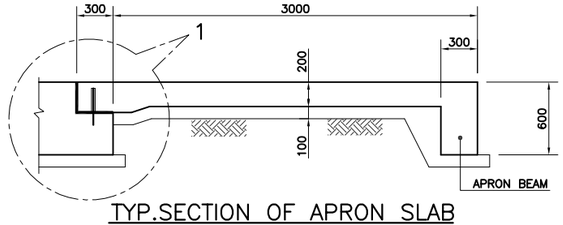
S.NO.	H	F1	F2	F3	Wt1	Ft1	BAR 'A'	BAR 'B'	BAR 'C'	BAR 'D'
1	1500	1200	200	750	250	250	12ø@200	12ø@200	12ø@200	12ø@200
2	2500	1800	300	1250	250	250	16ø@200	12ø@200	12ø@200	16ø@200
3	3000	2000	300	1400	300	300	16ø@200	12ø@200	12ø@200	16ø@200
4	4000	3000	700	1950	350	350	16ø@125	12ø@200	16ø@200	16ø@125
5	4500	3200	850	2000	350	350	16ø@100	12ø@200	16ø@200	16ø@100



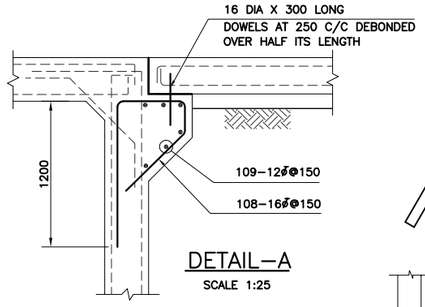
DETAIL 1
SCALE 1:25



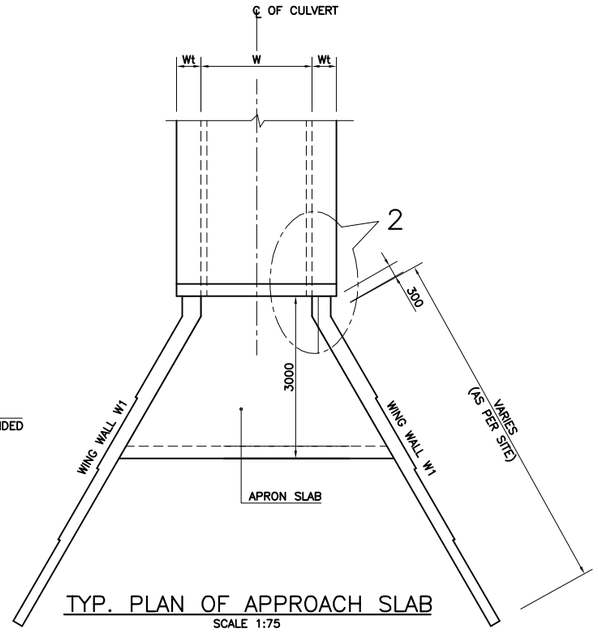
DETAIL 2
SCALE 1:25



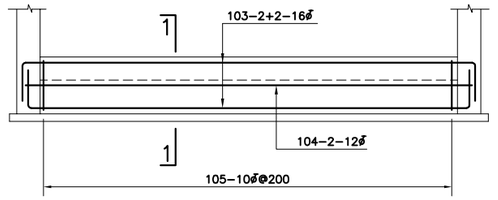
TYP.SECTION OF APRON SLAB
SCALE 1:25



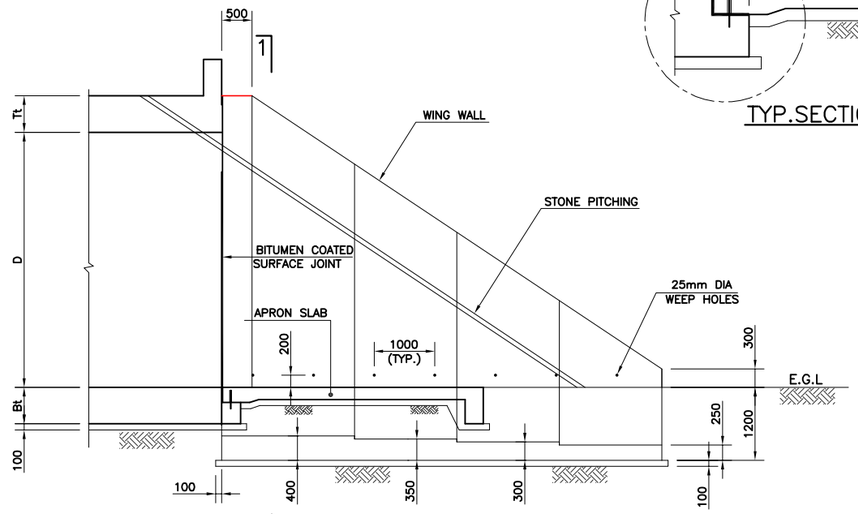
DETAIL–A
SCALE 1:25



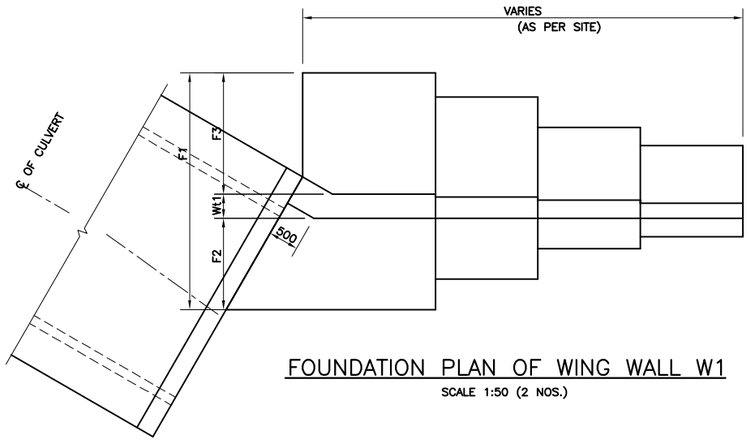
TYP. PLAN OF APPROACH SLAB
SCALE 1:75



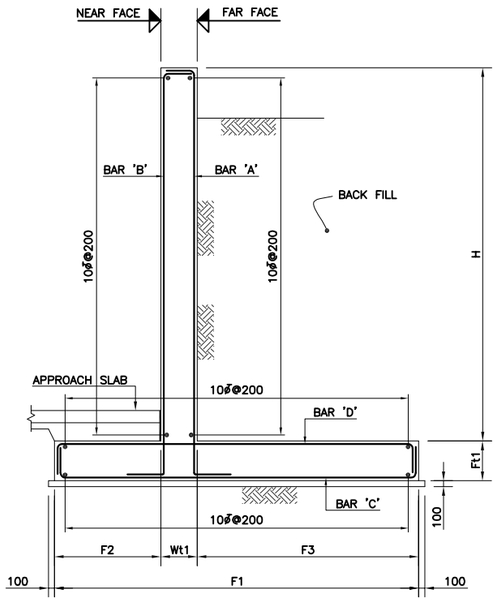
ELEV. OF APRON BEAM
SCALE 1:25



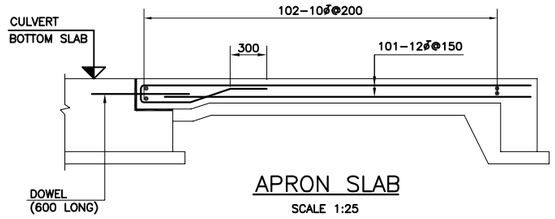
1 ELEVATION OF WING WALL
SCALE 1:50



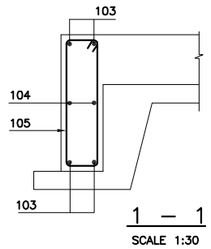
FOUNDATION PLAN OF WING WALL W1
SCALE 1:50 (2 NOS.)



1 – 1
SCALE 1:50



APRON SLAB
SCALE 1:25



1 – 1
SCALE 1:30

NOTES

1– THIS DRAWING MUST BE READ IN CONJUNCTION WITH DWG. NO. 2053–STR–SH01–BC–01.

CLIENT:- ADB Asian Development Bank EXECUTING AGENCY:- WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH	PROJECT:- LOAN NO. 4279-PAK (COL): EMERGENCY FLOOD ASSISTANCE PROJECT (EFAP)	DESIGN CONSULTANT ECIL In association with	PROJECT ROAD:- DISTRICT : SHIKARPUR - SH-01 REHABILITATION OF ROAD FROM SUKKUR LARKANA ROAD @ KHERTHAR CANAL TO JHALI KALWARI TITLE:- REINFORCEMENT DETAILS OF APRON SLAB & WING WALLS FOR CULVERT HEIGHT > 2m	ED.NO. / DATE / DESCRIPTION	DRAWN: F.A.S DESIGNED: R.I / M.A CHECKED: S.A DATE: JUNE 2023	DRAWING NO. 2053-STR-SH01-BC-05 Scale:- 1:100 Edition.