REPUBLIC OF THE PHILIPPINES

DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

REGION XI

DAVAO DEL NORTE

2ND DISTRICT ENGINEERING OFFICE

TAGUM CITY

C.Y. 2025 PROJECT

DETAILED ENGINEERING DESIGN PLAN FOR

TAGUM-PANABO CIRCUM RD. - K1515+670 - K1517+165

SECTION	:	NEW MALITBOG SECTION
LOCATION	:	PANABO CITY, DAVAO DEL NORTE
STATION LIMITS	:	K 1515+670.00 - K 1517+165.00
NET LENGTH	:	1,482.00 LN.M ASPHALT OVERLAY/5.928 LANE.KM
ROAD SECTION I.D	:	S01365MN

SUBMITTED:

JEZABEL E. TULING, MPA
CHIEF,PLANNING & DESIGN SECTION

DATE:

RECOMMENDED:

GARRY E. VERANO
OFFICER-IN-CHARGE
OFFICE OF ASSISTANT DISTRICT ENGINEER

DATE:

APPROVED:

ARTURO P. LONGYAPON
DISTRICT ENGINEER

DATE:

PROJECT LIMITS :

ROAD ASPHALT OVERLAY:

K 1515 + 670 - K 1517 + 165 = 1,482.00 LN.M.

NET LENGTH = 1,482.00 LN.M.

PAVING OF SHOULDERS AND SIDEWALK WITH CURB AND GUTTER; INSTALLATION OF LATERAL BLIND DRAINAGE CANAL (36" DIA. RCPC)

K 1515 + 880 - K 1516 + 420 = 1,014 LN.M. B/S

RECONSTRUCTION OF EXISTING PAVED SHOULDER

K 1515 + 880 - K 1516 + 000 = 115.00 LN.M. B/S

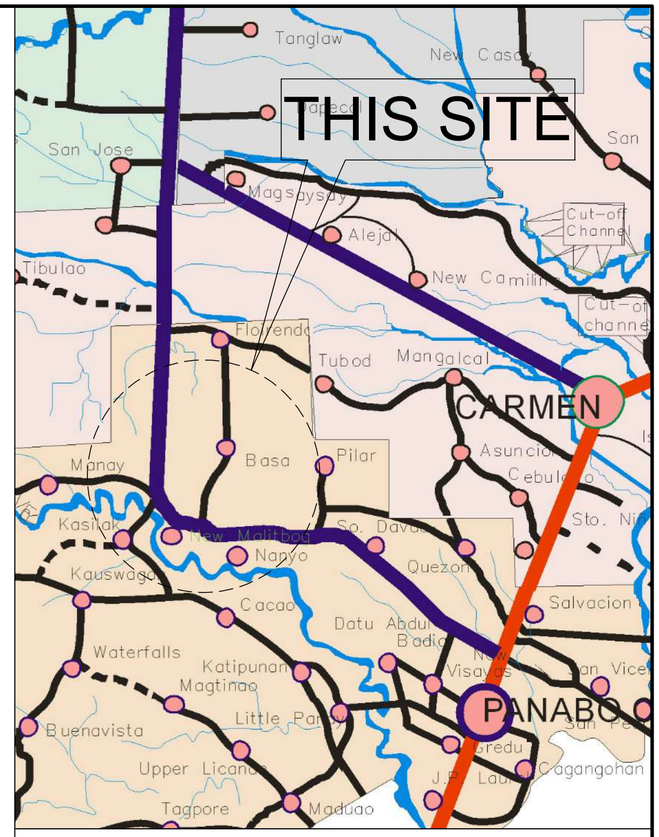
PAVING OF SHOULDER SHOULDER

K 1516 + 420 - K 1517 + 165 = 1,280.00 LN.M. B/S

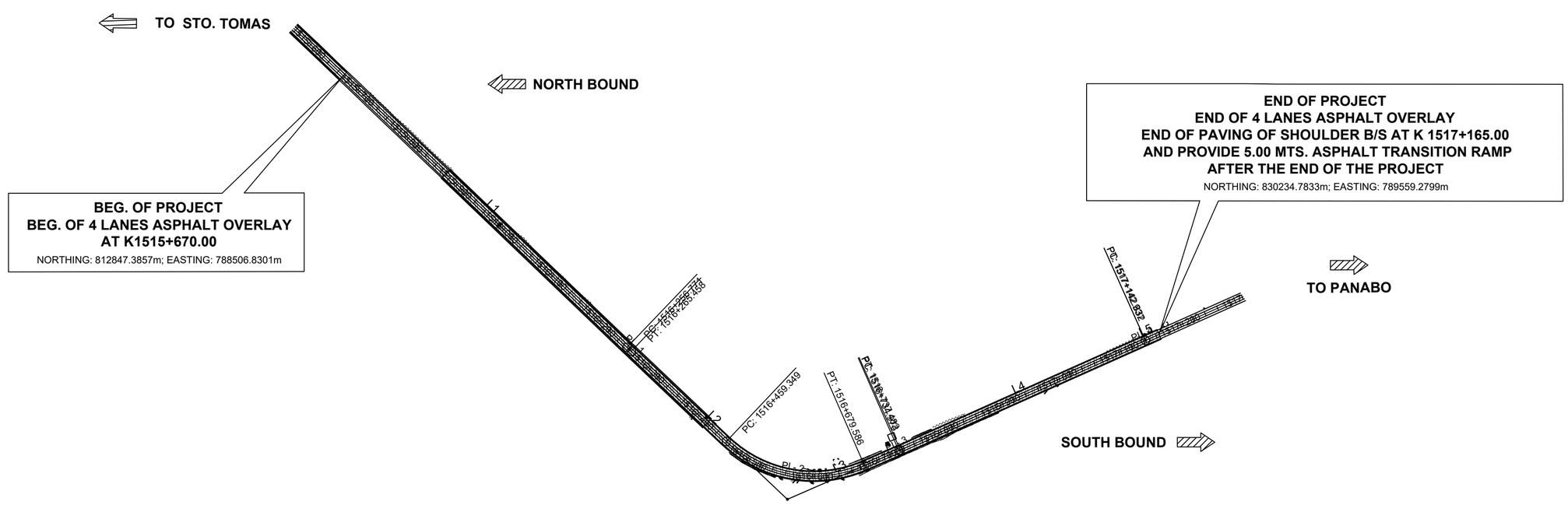
RBIA LENGTH:

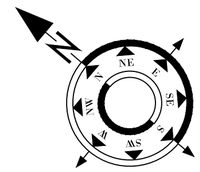
K 1515 + 000 - K 1516 + 000 = 995.00 LN.M
K 1516 + 000 - K 1517 + 000 = 992.00 LN.M

INDEX OF DRAWINGS



LOCATION MAP
DRAWN NOT TO SCALE





VICINITY PLAN
SCALE 1:5000 MTS.

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION XI
DAVAO DEL NORTE
2ND DISTRICT ENGINEERING OFFICE
TAGUM CITY

PROJECT NAME AND LOCATION:	SHEET CONTENTS:	DRAFTED:	REVIEWED:	SUBMITTED:	RECOMMENDED:	APPROVED:	SET NO.	SHEET NO.
TAGUM-PANABO CIRCUM RD. - K1515+670 - K1517+165	INDEX OF DRAWINGS, PROJECT LIMITS, VICINITY PLAN, LOCATION MAP	**HERWIN EVAN J. HABABAG** ENGINEER II PREPARED: **WARREN S. PIÑEZ** ENGINEER II	**BENILDA S. PACQUIAO** ENGINEER III DATE:	**JEZABEL E. TULING, MPA** CHIEF, PLANNING AND DESIGN SECTION DATE:	**GARRY E. VERANO** OFFICER-IN-CHARGE OFFICE OF THE ASSISTANT DISTRICT ENGINEER DATE:	**ARTURO P. LONGYAPON** DISTRICT ENGINEER DATE:	A 1 1	1 31

G E N E R A L N O T E S

SPECIFICATIONS

1. All works shall comply with the "DPWH STANDARD SPECIFICATION VOLUME II, HIGHWAYS, BRIDGES AND AIRPORTS 2013", special provision and supplemental specifications pertaining to this project.

DIMENSIONS

1. Distance between the horizontal control points including reference points are measured and expressed in meters.
2. Unless otherwise specified, dimensions of pipes, box culverts, bridges and other structures are measured and expressed in millimeters.
3. All other dimensions are expressed in meters.

SURVEY SPECIFICATIONS

1. All project control points are projected in PRS '92 Grid Coordinate System (Zone 5)
2. Survey Instrument used, Stonex S9111 Plus STNS95321007 (Base), Stonex S9111 Plus STNS95491002 (Rover)
3. Date surveyed: January 15 - 16, 2024
4. Project Control Points, Refer to Plan and Profile

ELEVATIONS AND GRADES

1. Finished grade elevation shown on plan and profile sheets refers to finished pavement level as indicated in the typical roadway section.
2. Ground grade shown on the plan and profile sheets refers to the elevation of the original ground along the centerline of the project road.

OTHER GENERAL REQUIREMENTS

1. Alignment and grades are subject to adjustments to suit actual field conditions.
2. Distances and elevations are in meter unless otherwise indicated.
3. Grades shown are top of finished pavement.
4. All works shall comply with the Standard Specifications for Highways and Bridges, Revised 2004 and "A Policy on Geometric Design", AASHTO 2011.
5. Where no detours are available, traffic shall be handled in accordance to the provisions of Clause 75 of the DPWH Standard Specifications, Volume 1, Requirements and Conditions of Contract (1988).
6. The contractor shall continuously keep the road undergoing improvement and the section detours in such condition satisfactory to the Engineer that traffic will be accommodated during the entire contract period without any inconvenience to the traveling public in accordance to Clause 38 of the DPWH Standards Specifications, Volume 1, Requirements and Conditions of Contract (1988). The contractor shall bear all expenses for constructing, reconstructing if necessary and maintaining such road detours, approaches, including run-around temporary bridges without compensation.
7. The apparent silence of specifications, plans, special provisions and supplementary specifications, as to any detail or the apparent omission from them of a detailed description concerning any point shall be regarded as meaning that only the best general practice is to prevail and that only material and workmanship of first class quality are to be used.
8. Roads closed to traffic shall be protected by effective barricades, and obstructions shall be illuminated at night. Suitable warning signs, illuminated at night by lanterns of flares, shall be provided. All lights for this purpose shall be kept burning from sunset to sunrise.
9. The contractor will be required to erect warning signs outside of, and 150m from, each end of the project, and 150m in advance at any place on the project where operations interfere with the use of the road by traffic, and at all intermediate points where the new work crosses or coincides with an existing road.
10. Before the start of actual construction, the As-Staked Plan should be submitted to the Davao del Norte 2nd District Engineering Office in order that immediate steps may be taken to correct or adjust whatever appreciable deviation there may be from the original plan.
11. Quarry site for Item 200 is located at Mabuhay, Carmen (29.28 km. from the project site). Disposal site is one (1) km. away from project limit.
12. Design was based on survey data submitted by the Survey and Investigation Section of the Planning and Design Section of the DPWH-Davao del Norte Engineering 2nd District Office.

SUBBASE AND BASE COURSE

1. Re-preparation and compaction of the existing base/subbase to the required density shall be done prior to gravel resurfacing in accordance with DPWH Standard Specifications, Volume II, 2004, using vibrating rollers and pneumatic tire rollers. In areas where the said equipment cannot be used, a portable mechanical compactor shall be used.

SURFACE COURSE

1. Use steel forms for item 311- Portland Cement Concrete Pavement
2. When concrete is to be placed adjoining a previously constructed lane and mechanical equipment will be operated upon the existing lane, that previously constructed lane shall have attained the strength of fourteen (14) day concrete. If only finishing equipment is carried on the existing lane, paving in adjoining lanes may be permitted after three (3) days.
3. At transverse construction joints, holes of 60mm dia. and spaced at 300mm (for 230mm and 280mm thick concrete pavement) shall be drilled at one-half (1/2) of the existing concrete pavement thickness so as to permit the load transfer device (28mm dia. plain dowel bars for 230mm thick PCCP; 36mm dia plain dowel bars for 280mm thick PCCP; 36mm dia. for 300mm thick PCCP) to be inserted at one-half (1/2) of its length. The said device shall be installed firmly at the holes and shall be held in position parallel to the surface of the slab. The dowel bars shall be painted with red lead and the surface of one-half (1/2) of the length to be inserted shall be coated with concrete epoxy while the other half shall be coated with approved bituminous materials.
-DO 54, s.2012
4. If reinforcing steel bars are used, mortar blocks of approved dimension shall be installed at specific intervals to maintain uniform clearance from the base.
5. Transverse contraction joint shall be cut using a concrete saw to the required depth (one-fourth to one-third of the concrete pavement thickness) and width as shown in the approved plans.
6. All joints shall be sufficiently sealed with asphalt sealant prior to opening to vehicular traffic.
7. The use of type III portland cement meeting the requirements of AASHTO M-85 for high-early strength mix or type I portland cement with accelerating admixtures conforming to the requrements of AASHTO M-194 shall be used.
8. The entire surface of the newly placed concrete shall be cured with either one of the curing materials specified in ITEM 708.1 of the DPWH Standard Specificationsm Volume II, 1995.

FOR ASPHALT OVERLAY

1. Item 310 shall consist of constructing a bituminous concrete surface course composed of aggregates, mineral filler, and bituminous material mixed in a central plant, constructed and laid hot on the prepared base in accordance with this specification and in conformity with lanes, grades, thickness and typical cross-section shown on the plans.
2. Bituminous material shall be either medium curing (MC) cut-back asphalt cement, whichever is called for in the bill of quantities. It shall conform to the requirements of ITEM 702, Bituminous Materials. The penetration grade, type and grade of bituminous material shall be specified in the special provisions.
3. Aggregates shall conform to the requirements of ITEM 307, Bituminous Plant Mix Surface.
4. The proportion of bituminous material on the basis of total dry aggregate shall be from 5.0 to 0.8 mass percent. The exact percentage to be used shall be fixed by the engineer in accordance with the job-mix formula and the other quality control requirements.
5. During the mixing operation, one half to one (0.50 to 1.0) mass percent of hydrated lime, dry aggregate basis shall be added to the mixture. The lower percentage limit is applicable to aggregate which are predominantly calcareous.
6. The construction requirements shall be in accordance whenever applicable with SECTION 307.3.
7. All deteriorated transverse and longitudinal joints shall be sealed with asphalt prior to laying of asphalt mix.
8. All cracks shall be sealed using machine pressurized epoxy injection. Spacing of copper tubes used in epoxy injection shall have a minimum and maximum spacing of 100 mm and 150 mm respectively depending on the extent of the cracks.
9. The contractor shall be responsible for handling materials and performing all parts of the work shall be approved by the engineer as to design, capacity and mechanical condition. The equipment shall be at the jobsite sufficiently ahead of the start of construction operations to be examined thoroughly and approved.
10. The Asphalt Overlay must attain an IRI of 3m/km.

EARTHWORK

1. All concrete pavement, base course, sidewalks, curbs, gutters, etc., designated for removal shall be broken into pieces, the size of which shall not exceed 300mm (12in) in any dimension and stockpiled at designated locations on the project or as directed by the Engineer.
2. All excavations shall be finished to reasonably smooth and uniform surfaces. No materials shall be wasted without authority of the Engineer. Excavation operations shall be conducted so that material outside of the limit of slopes will not be disturbed.
3. Spoils from demolished/ excavated materials shall not be allowed to be stockpiled at the shoulder or part of the traveled roadway and shall be removed immediately to prevent obstruction. Spoils removed shall be disposed off in designated areas approved by the Engineer.

MISCELLANEOUS STRUCTURES

1. The application of paint for pavement markings shall be preferably carried out by a machine specially made for this propose but where brushed are used, only round or oval brushes not exceeding 100mm in width will be permitted. The paint shall be so applied as to produce a uniform, even coating in close contact with the surface being painted.

REFERENCES:

1. Revised DPWH Manual on Highway Safety Design Standards,May 2012 Edition
   - For road safety planning and design activities as well as road safety maintenance activities such as the proper way of installing ,applying road signs,road safety devices and pavement markings - D.O. 41,s. 2012
2. Labor Code of the Philippines and its Implementing Rules and Regulations DOLE DO No. 13,s. 1998, Occupational Safety and Health Standards and its Procedural Guidelines.
   - For monitoring, enforcement and implementation of construction safety and health - D.O. 56,s. 2005
3. Design References
   - DPWH Design Guidelines, Criteria & Standards (DGCS), 2015 Edition
   - Guidelines for the preparation of cost estimates for traffic management and safety & health requirements for the construction and maintenance of roads, bridges and safety & health requirements for school buildings, 2018
   - AASHTO a policy on geometric design standard of highways and streets, 2011 6th Edition
   - AASHTO guide on pavement design, 1993 Edition
   - Highway Safety Design Standards: Part 1 - Road Safety Design, and Part 2 - Road Signs and Pavement Markings, 2012 Edition

This is to certify that the detailed engineering surveys and designs have been conducted according to the prescribed agency standards and specifications in conformance with the provisions of Annex"A" of the Revised Implementing Rules and Regulations of RA 9184,and that the detailed engineering outputs are adequate for the procurement at hand.

WARREN S. PIÑEZ
Head, Survey and Investigation Unit

LEGEND

SYMBOLS	DESCRIPTION	SYMBOLS	DESCRIPTION
CH	CONCRETE HOUSE		BENCH MARK
P	PUROK	CEP	CONCRETE ELECTRIC POST
WH	WOODEN HOUSE	WEP	WOODEN ELECTRIC POST
	EXISTING RCC PIPE		CENTERLINE
	SIDE SHOT REMARK		EDGELINE
	JUNCTION ROAD		SHOULDER LINE
	VARIOUS TREES		RROW LINE
RP-2 RP-2	REFERENCE POINTS		GRAVEL
	WATER FLOW DIRECTION		ASPHALT OVERLAY
	WATERWAY		REBLOCKING
	RCC PIPE PROFILE		CYLINDRICAL MONUMENT
	FENCE	PI	POINT OF INTERSECTION
	HEADWALL		BARBWIRE FENCE
	TURNING POINTS		REMOVAL OF EXISTING ASPHALT

REPUBLIC OF THE PHILIPPINES
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DAVAO DEL NORTE
2ND DISTRICT ENGINEERING OFFICE
TAGUM CITY

PROJECT NAME AND LOCATION: **TAGUM-PANABO CIRCUM RD. - K1515+670 - K1517+165**

SHEET CONTENTS: GENERAL NOTES AND LEGENDS

DRAFTED: **HERWIN EVAN J. HABABAG** ENGINEER II
PREPARED: **WARREN S. PIÑEZ** ENGINEER II

REVIEWED: **BENILDA S. PACQUIAO** ENGINEER III DATE:

SUBMITTED: **JEZABEL E. TULING, MPA** CHIEF, PLANNING AND DESIGN SECTION DATE:

RECOMMENDED: **GARRY E. VERANO** OFFICER-IN-CHARGE OFFICE OF THE ASSISTANT DISTRICT ENGINEER DATE:

APPROVED: **ARTURO R. LONGYAPON** DISTRICT ENGINEER DATE:

SET NO. B 1 1

SHEET NO. 2 31

SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	REMARKS
Part B	**Other General Requirement**			
B.4(1)	Construction Survey and Staking	km	1.48	
B.5	Project Billboard/Signboard	ea	4.00	COA & DPWH Billboard
B.7(2)	Occupational Safety and Health Program	ls	1.00	
B.8(2)	Traffic Management	ls	1.00	
B.9	Mobilization and Demobilization	ls	1.00	
Part C	**Earthworks**			
101(3)b3	Removal of Actual Structures/Obstruction (0.23m thk. PCCP-Unreinforced)	sq.m.	345.00	SEE SCHEDULE
101(3)b3	Removal of Actual Structures/Obstruction (0.23m thk. PCCP-Unreinforced)	sq.m.	1,884.38	SEE SCHEDULE
101(3)b5	Removal of Actual Structures/Obstruction (0.28m thk. PCCP-Unreinforced)	sq.m.	1,386.90	SEE SCHEDULE
101(3)c1	Removal of Actual Structures/Obstruction (0.05m thk. ACP)	sq.m.	9,929.00	
102(1)	Unsuitable Excavation	cu.m	1,323.00	
103(1)a	Structure Excavation - Common Soil	cu.m	1,302.00	
103(3)	Foundation Fill	cu.m	255.00	
103(6)a	Pipe Culverts and Drain Excavation (Common Soil)	cu.m	1,945.00	
104(1)a	Embankment from Roadway/Structure Excavation (Common Soil)	cu.m	121.00	
104(2)a	Embankment (from Borrow)	cu.m	2,083.00	
105(1)a	Subgrade Preparation (Common Material)	sq.m.	5,155.65	
Part C	**Subbase and Base Course**			
200(1)	Aggregate Subbase Course	cu.m	1,268.00	
Part E	**Surface Course**			
302(2)	Emulsified Asphalt	sq.m.	40,476.60	
310(1)c	Bituminous Concrete Surface Wearing Course, Hot Laid (40 mm. thk.)	sq.m.	24,637.95	
310(2)c	Bituminous Concrete Surface Binder Course, Hot Laid (40 mm. thk.)	sq.m.	11,484.96	
311(1)a	Portland Cement Concrete Pavement (Unreinforced) - 14 days; 0.15 m. thk.	sq.m.	2,892.80	
311(1)a5	Portland Cement Concrete Pavement with Macro Synthetic Fibers, 0.30 m. thk. 14 days	sq.m.	3,271.28	
Part G	**Drainage and Slope Protection Structures**			
404(1)b	Reinforcing Steel - Grade 60	kg	21,678.07	SEE DRAINAGE SCHEDULE
405(1)a2	Structural Concrete, Class "A", 14 days	cu.m	219.71	SEE DRAINAGE SCHEDULE
500(1)b3	Pipe Culverts, 910 dia., Class IV, RCPC	lm	1,014.00	SEE DRAINAGE SCHEDULE
502(1)b3	Manhole - 910mm dia. (CHB)	ea	56.00	SEE DRAINAGE SCHEDULE
Part H	**Miscellaneous Structures**			
600(7)	Curb & Gutter (Precast)	pc	976.00	SEE DETAILS AND SCHEDULE
605(1)am2	Warning Signs, 600mm x 900mm; Class: W6-5B; Pedestrian and School Signs Bike Lane Ahead,	ea	4.00	SEE DETAILS AND SCHEDULE
605(2)ak2	Regulatory Signs, 600mm, R6-10B, Miscellaneous Signs Bike Lane Sign	ea	15.00	SEE DETAILS AND SCHEDULE
612(1)	Reflectorized Thermoplastic Pavement Markings (White)	sq.m.	854.95	SEE DETAILS AND SCHEDULE
612(2)	Reflectorized Thermoplastic Pavement Markings (Yellow)	sq.m.	102.00	SEE DETAILS AND SCHEDULE
612(4)	Reflectorized Thermoplastic Pavement Markings (Green)	sq.m.	81.00	SEE DETAILS AND SCHEDULE
613(1)	Concrete Joint Sealant (Hot-Poured Elastic Type)	kg.	126.67	

NOTE: THE QUANTITIES OF ALL WORK ITEMS INVOLVED ARE SUBJECT TO INCREASE/ DECREASE AS PER ACTUAL FIELD REQUIREMENTS.

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PROJECT NAME AND LOCATION: **TAGUM-PANABO CIRCUM RD. - K1515+670 - K1517+165**

SHEET CONTENTS: SUMMARY OF QUANTITIES

DRAFTED: **HERWIN EVAN J. HABABAG** ENGINEER II
PREPARED: **WARREN S. PIÑEZ** ENGINEER II

REVIEWED: **BENILDA S. PACQUIAO** ENGINEER III DATE:

SUBMITTED: **JEZABEL E. TULING, MPA** CHIEF, PLANNING AND DESIGN SECTION DATE:

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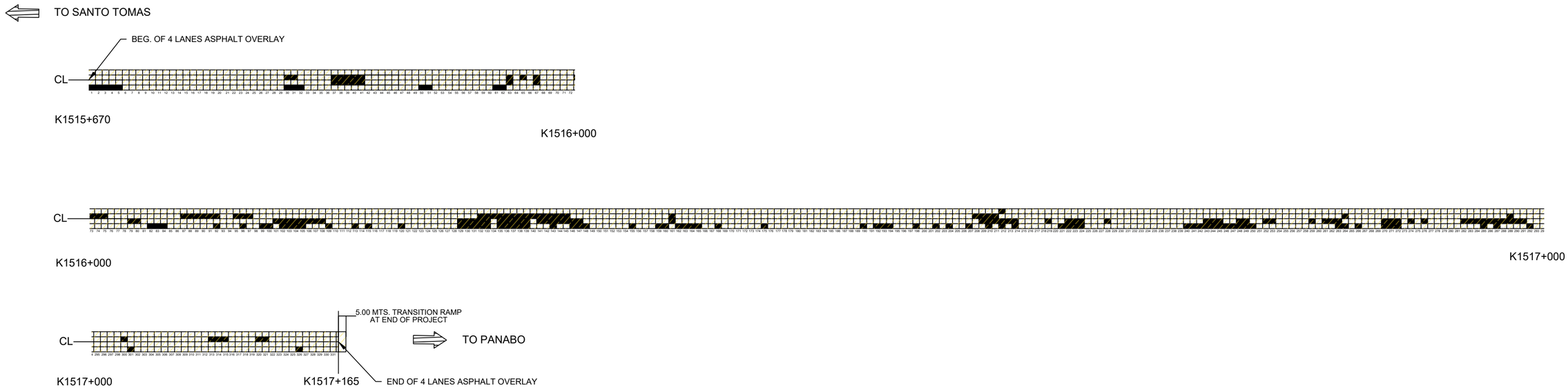
APPROVED: **ARTURO P. LONGYAPON** DISTRICT ENGINEER DATE:

SET NO. C 1 1

SHEET NO. 3 / 31



ITEM 101(3)b5 - Removal of Actual Structures/Obstruction (0.28m thk. PCCP - Unreinforced)

STATION	LENGTH (m)	WIDTH (m)	THICKNESS (mm)	AREA (sq.m)	REMARKS
K1515+670.00 - K1515+692.50	22.50	3.35	280.00	75.38	OUTER R/S
K1515+800.00 - K1515+813.50	13.50	3.35	280.00	45.23	OUTER R/S
K1515+890.00 - K1515+899.00	9.00	3.35	280.00	30.15	OUTER R/S
K1515+940.00 - K1515+949.00	9.00	3.35	280.00	30.15	OUTER R/S
K1516+040.00 - K1515+053.50	13.50	3.35	280.00	45.23	OUTER R/S
K1516+085.00 - K1515+089.50	4.50	3.35	280.00	15.08	OUTER R/S
K1516+105.00 - K1515+109.50	4.50	3.35	280.00	15.08	OUTER R/S
K1516+115.00 - K1515+124.00	9.00	3.35	280.00	30.15	OUTER R/S
K1516+130.00 - K1515+148.00	18.00	3.35	280.00	60.30	OUTER R/S
K1516+160.00 - K1515+164.50	4.50	3.35	280.00	15.08	OUTER R/S
K1516+180.00 - K1515+184.50	4.50	3.35	280.00	15.08	OUTER R/S
K1516+190.00 - K1515+194.50	4.50	3.35	280.00	15.08	OUTER R/S
K1516+210.00 - K1515+214.50	4.50	3.35	280.00	15.08	OUTER R/S
K1516+250.00 - K1516+272.50	22.50	3.35	280.00	75.38	OUTER R/S
K1516+275.00 - K1516+297.50	22.50	3.35	280.00	75.38	OUTER R/S
K1516+315.00 - K1516+319.50	4.50	3.35	280.00	15.08	OUTER R/S
K1516+325.00 - K1516+338.50	13.50	3.35	280.00	45.23	OUTER R/S
K1516+370.00 - K1516+374.50	4.50	3.35	280.00	15.08	OUTER R/S
K1516+385.00 - K1516+394.00	9.00	3.35	280.00	30.15	OUTER R/S
K1516+400.00 - K1516+418.00	18.00	3.35	280.00	60.30	OUTER R/S
K1516+425.00 - K1516+429.50	4.50	3.35	280.00	15.08	OUTER R/S
K1516+460.00 - K1516+464.50	4.50	3.35	280.00	15.08	OUTER R/S
K1516+525.00 - K1516+529.50	4.50	3.35	280.00	15.08	OUTER R/S
K1516+535.00 - K1516+548.50	13.50	3.35	280.00	45.23	OUTER R/S
K1516+560.00 - K1516+564.50	4.50	3.35	280.00	15.08	OUTER R/S
K1516+575.00 - K1516+579.50	4.50	3.35	280.00	15.08	OUTER R/S
K1516+585.00 - K1516+589.50	4.50	3.35	280.00	15.08	OUTER R/S
K1516+600.00 - K1516+604.50	4.50	3.35	280.00	15.08	OUTER R/S
K1516+610.00 - K1516+614.50	4.50	3.35	280.00	15.08	OUTER R/S
K1516+620.00 - K1516+624.50	4.50	3.35	280.00	15.08	OUTER R/S
K1516+630.00 - K1516+634.50	4.50	3.35	280.00	15.08	OUTER R/S
K1516+650.00 - K1516+678.00	18.00	3.35	280.00	60.30	OUTER R/S
K1516+745.00 - K1516+794.50	49.50	3.35	280.00	165.83	OUTER R/S
K1516+850.00 - K1516+859.00	9.00	3.35	280.00	30.15	OUTER R/S
K1516+865.00 - K1516+869.50	4.50	3.35	280.00	15.08	OUTER R/S
K1516+880.00 - K1516+893.50	13.50	3.35	280.00	45.23	OUTER R/S
K1516+950.00 - K1516+954.50	4.50	3.35	280.00	15.08	OUTER R/S
K1516+960.00 - K1516+973.50	13.50	3.35	280.00	45.23	OUTER R/S
K1516+980.00 - K1516+993.50	13.50	3.35	280.00	45.23	OUTER R/S
K1516+620.00 - K1516+624.50	4.50	3.35	280.00	15.08	OUTER L/S
K1517+025.00 - K1516+029.50	4.50	3.35	280.00	15.08	OUTER R/S
K1517+135.00 - K1516+139.50	4.50	3.35	280.00	15.08	OUTER R/S
TOTAL				1,386.90	

STRAIGHT LINE DIAGRAM

SCALE 1:2000

ITEM 101(3)b3 - Removal of Actual Structures/Obstruction (0.23m thk. PCCP - Unreinforced)

STATION	LENGTH (m)	WIDTH (m)	THICKNESS (mm)	AREA (sq.m)	REMARKS
K1515+830.00 - K1515+852.50	45.00	3.35	230.00	150.75	INNER B/S
K1515+950.00 - K1515+954.50	9.00	3.35	230.00	30.15	INNER B/S
K1515+965.00 - K1515+969.50	9.00	3.35	230.00	30.15	INNER B/S
K1515+800.00 - K1515+809.00	9.00	3.35	230.00	30.15	INNER L/S
K1515+960.00 - K1515+982.50	22.50	3.35	230.00	75.38	INNER L/S
K1516+025.00 - K1516+034.00	9.00	3.35	230.00	30.15	INNER R/S
K1516+125.00 - K1516+161.00	36.00	3.35	230.00	120.60	INNER R/S
K1516+250.00 - K1516+272.50	22.50	3.35	230.00	75.38	INNER R/S
K1516+275.00 - K1516+297.50	22.50	3.35	230.00	75.38	INNER R/S
K1516+305.00 - K1516+336.50	31.50	3.35	230.00	105.53	INNER R/S
K1516+395.50 - K1516+400.00	9.00	3.35	230.00	30.15	INNER B/S
K1516+605.00 - K1516+632.00	27.00	3.35	230.00	90.45	INNER R/S
K1516+650.00 - K1516+654.50	4.50	3.35	230.00	15.08	INNER R/S
K1516+665.00 - K1516+678.50	13.50	3.35	230.00	45.23	INNER R/S
K1516+690.00 - K1516+694.50	4.50	3.35	230.00	15.08	INNER R/S
K1516+760.00 - K1516+773.50	13.50	3.35	230.00	45.23	INNER R/S
K1516+780.00 - K1516+789.00	9.00	3.35	230.00	30.15	INNER R/S
K1516+800.00 - K1516+809.00	9.00	3.35	230.00	30.15	INNER R/S
K1516+830.00 - K1516+834.50	4.50	3.35	230.00	15.08	INNER R/S
K1516+840.00 - K1516+853.50	13.50	3.35	230.00	45.23	INNER R/S
K1516+880.00 - K1516+893.50	13.50	3.35	230.00	45.23	INNER R/S
K1516+900.00 - K1516+904.50	4.50	3.35	230.00	15.08	INNER R/S
K1516+910.00 - K1516+914.50	4.50	3.35	230.00	15.08	INNER R/S
K1516+935.00 - K1516+980.00	45.00	3.35	230.00	150.75	INNER R/S
K1516+000.00 - K1516+013.50	13.50	3.35	230.00	45.23	INNER L/S
K1516+060.00 - K1516+087.00	27.00	3.35	230.00	90.45	INNER L/S
K1516+100.00 - K1516+113.50	13.50	3.35	230.00	45.23	INNER L/S
K1516+265.00 - K1516+328.00	63.00	3.35	230.00	211.05	INNER L/S
K1516+600.00 - K1516+618.00	18.00	3.35	230.00	60.30	INNER L/S
K1516+855.00 - K1516+859.50	4.50	3.35	230.00	15.08	INNER L/S
K1516+965.00 - K1516+969.50	4.50	3.35	230.00	15.08	INNER L/S
K1517+020.00 - K1517+024.50	4.50	3.35	230.00	15.08	INNER L/S
K1517+080.00 - K1517+093.50	13.50	3.35	230.00	45.23	INNER L/S
K1517+110.00 - K1517+119.00	9.00	3.35	230.00	30.15	INNER L/S
TOTAL				1,884.38	

LEGEND:

- FOR NEW ASPHALT OVERLAY
- FOR REBLOCKING/RECONSTRUCTION

SCHEDULE FOR REMOVAL OF EXISTING ASPHALT OVERLAY

ITEM 101(3)c1 - Removal of Actual Structures/Obstruction (0.50m thk ACP)

STATION	LENGTH (m)	WIDTH (m)	AREA (sq.m.)	REMARKS
K 1515+670.00 - K 1517+165.00	1,482.00	6.70	9,929.00	2 LANES
		TOTAL=	9,929.00	

SCHEDULE OF ASPHALT OVERLAY

ITEM 310(2)c - Bituminous Concrete Surface Binder Course, Hot Laid (50 mm. thk.) - 1st Layer

STATION	LENGTH (m)	AREA (sq.m.)	REMARKS
K 1515+670.00 - K 1517+165.00	1,482.00	11,417.96	4 LANES
END OF PROJECT	5.00	67.00	FOR TRANSITION RAMPS
TOTAL		11,484.96	

SCHEDULE OF ASPHALT OVERLAY

ITEM 310(1)c - Bituminous Concrete Surface Wearing Course, Hot Laid (50 mm. thk.) - 2nd Layer

STATION	LENGTH (m)	AREA (sq.m.)	REMARKS
K 1515+670.00 - K 1517+165.00	1,482.00	24,570.95	4 LANES
END OF PROJECT	5.00	67.00	FOR TRANSITION RAMPS
TOTAL		24,637.95	

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION XI
DAVAO DEL NORTE
2ND DISTRICT ENGINEERING OFFICE
TAGUM CITY

PROJECT NAME AND LOCATION:
TAGUM-PANABO CIRCUM RD. - K1515+670 - K1517+165

SHEET CONTENTS:
STRAIGHT LINE DIAGRAM
SCHEDULE OF REBLOCKING
SCHEDULE OF ASPHALT OVERLAY

DRAFTED:
HERWIN EVAN J. HABABAG
ENGINEER II

PREPARED:
WARREN S. PIÑEZ
ENGINEER II

REVIEWED:
BENILDA S. PACQUIAO
ENGINEER III
DATE:

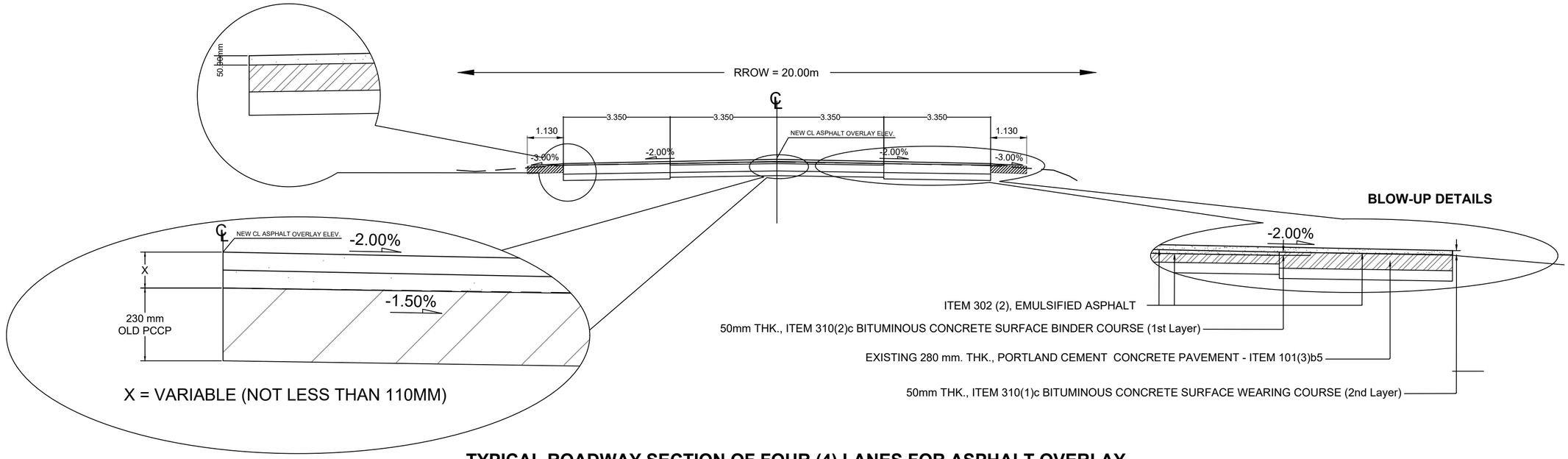
SUBMITTED:
JEZABEL E. TULING, MPA
CHIEF, PLANNING AND DESIGN SECTION
DATE:

RECOMMENDED:
GARRY E. VERANO
OFFICER-IN-CHARGE
OFFICE OF THE ASSISTANT DISTRICT ENGINEER
DATE:

APPROVED:
ARTURO R. LONGYAPON
DISTRICT ENGINEER
DATE:

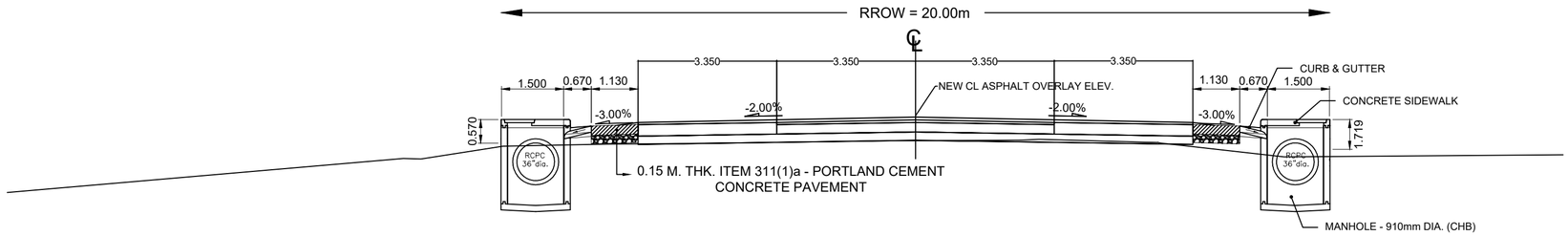
SET NO. D 1 1

SHEET NO. 4 31



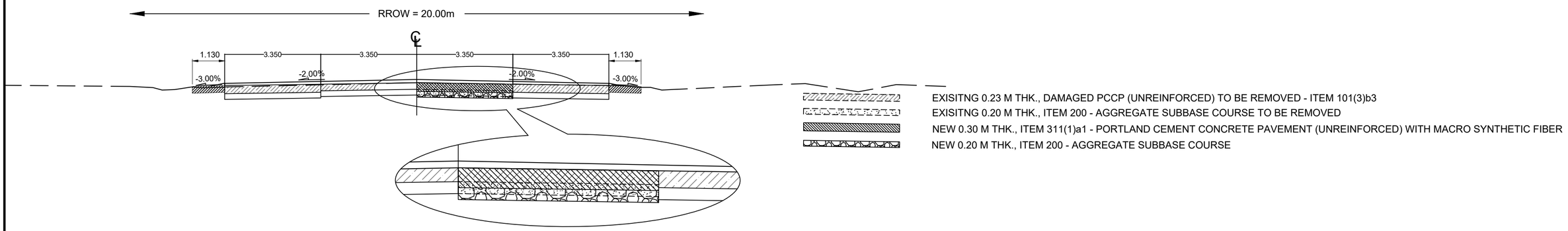
TYPICAL ROADWAY SECTION OF FOUR (4) LANES FOR ASPHALT OVERLAY

SCALE 1 : 100 M.



TYPICAL ROADWAY SECTION OF FOUR (4) LANES FOR PAVING OF SHOULDER AND SIDEWALK W/ CURB AND GUTTER AND INSTALLATION OF BLIND DRAINAGE B/S

SCALE 1 : 100 M.

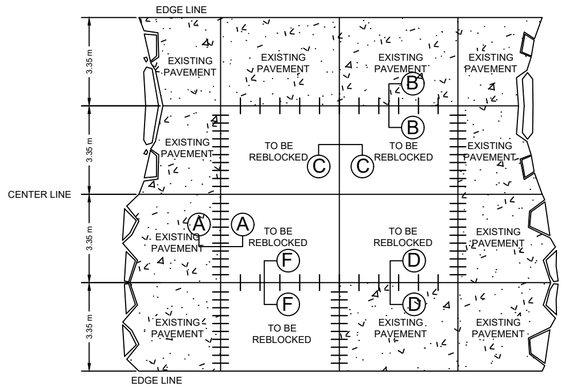


TYPICAL ROADWAY SECTION OF FOUR (4) LANES FOR ASPHLAT OVERLAY WITH REBLOCKING AT INNER LANE

SCALE 1 : 100 M.

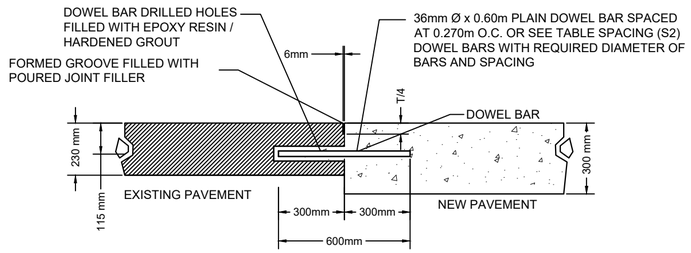
REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION XI
DAVAO DEL NORTE
2ND DISTRICT ENGINEERING OFFICE
TAGUM CITY

PROJECT NAME AND LOCATION:	SHEET CONTENTS:	DRAFTED:	REVIEWED:	SUBMITTED:	RECOMMENDED:	APPROVED:	SET NO.	SHEET NO.
TAGUM-PANABO CIRCUM RD. - K1515+670 - K1517+165	TYPICAL ROADWAY SECTION	**HERWIN EVAN J. HABABAG** ENGINEER II PREPARED: **WARREN S. PIÑEZ** ENGINEER II	**BENILDA S. PACQUIAO** ENGINEER III DATE:	**JEZABEL E. TULING, MPA** CHIEF, PLANNING AND DESIGN SECTION DATE:	**GARRY E. VERANO** OFFICER-IN-CHARGE OFFICE OF THE ASSISTANT DISTRICT ENGINEER DATE:	**ARTURO R. LONGYAPON** DISTRICT ENGINEER DATE:	E 1 1	5 31



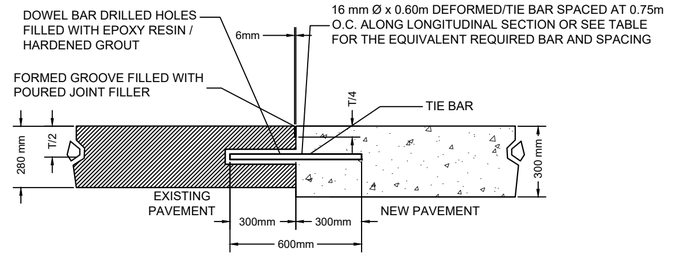
TYPICAL PLAN OF PCCP (4 LANES) - FOR REBLOCKING

SCALE NTS



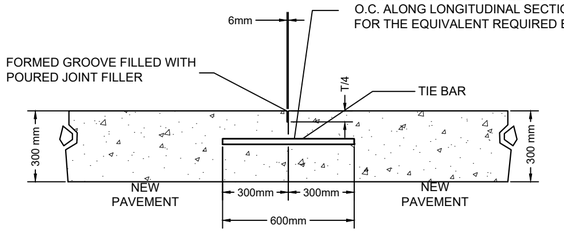
(TO BE USED FOR CONNECTIONS WITH EXISTING PAVEMENT AND NEW PAVEMENT WITH DIFFERENT THICKNESS)

A TRANSVERSE CONSTRUCTION JOINT (SECTION A - A) (NEW AND EXISTING PAVEMENT)

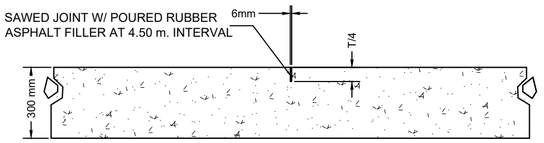


(TO BE USED FOR CONNECTIONS WITH EXISTING PAVEMENT AND NEW PAVEMENT WITH DIFFERENT THICKNESS)

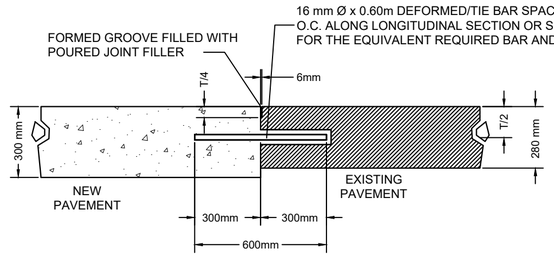
B LONGITUDINAL CONSTRUCTION JOINT (SECTION B - B) (NEW AND EXISTING PAVEMENT)



F LONGITUDINAL CONSTRUCTION JOINT (SECTION F - F)



C TRANSVERSE CONTRACTION JOINT (SECTION C-C)



(TO BE USED FOR CONNECTIONS WITH EXISTING PAVEMENT AND NEW PAVEMENT WITH SAME THICKNESS)

D LONGITUDINAL CONSTRUCTION JOINT (SECTION D - D) (NEW AND EXISTING PAVEMENT)

TABLE SPACING OF TIE BARS (L=600 mm)		
SLAB THICKNESS (mm)	SPACING S1 (mm)	
	12 mm dia.	16 mm dia.
230	600	750
240	600	750
250	600	750
260	500	750
270	500	750
280	500	750
290	500	750
300	500	750
310	400	750
320	400	750
330	400	750
340	400	750

BASED ON AASHTO GUIDE FOR DESIGN OF PAVEMENT STRUCTURES 1993.
NOTE: THE BAR SPACING WILL BE BASED FROM THICKNESS OF THE NEW PAVEMENT

N O T E:

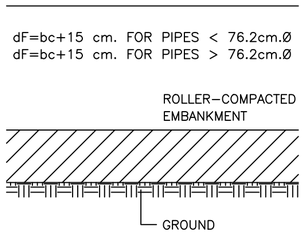
1. Materials and workmanship shall conform with the DPWH Standard Specification for Highways, Bridges and Airport, 2013
2. Contraction joints are formed when concrete on one side of the joint is poured ahead and allowed to set before pouring on the other side, No construction joint shall be placed within 1.50 m. from the weakened plane joint.
3. At construction joint (longitudinal or transverse) care should be taken that no concrete from the last slab placed overhangs any portion of the first slab.
4. Tie bars should be deformed steel bars. All dowel bars shall be smooth round steel bar free from rust and other defects which might restrict their movement.
5. Type of weakened plane joint to be used shall be as specified in the plans and only one type should be used for the whole project.
6. Material for the metal side form shall be brand new sheet metal Gauge no. 15 of black iron free from rust and links.
7. At least six (6) successive doweled butt joints at normal joint spacing shall be provided before or after an expansion joint.
8. The groove or cracks above joints (longitudinal or transverse) shall be sealed with 30-50 penetration asphalt seal or cold applied liquid rubber compound after the concrete had been cured and before opening pavement to traffic. Asphalt sealed should be poured in such manner that spalling shall be prevented/eliminated, thus, provide a smooth leveling/ riding surface.
9. All transverse joints except construction joint shall be continuous from edge to edge.
10. All longitudinal joints shall meet at intersections with no gaps or offset.
11. All dimensions are in millimeters unless otherwise specified.
12. Avoid stoppage of formworks along curves.
13. Construct expansion joint at every 90 meters and/or every adjacent existing structures.

TABLE SPACING (S2) OF DOWEL BARS (L=600mm)				
SLAB DEPTH, (T) (mm)	SPACING FOR 36mm. dia, DOWEL BAR (mm)	SPACING FOR 32mm. dia, DOWEL BAR (mm)	SPACING FOR 28mm. dia, DOWEL BAR (mm)	SPACING FOR 25mm. dia, DOWEL BAR (mm)
280	300	250	190	160
290	290	230	170	140
300	270	210	160	130
310	250	200	150	120
320	230	190	140	110
330	220	180	130	110
340	200	170	130	100

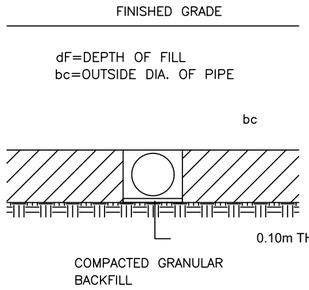
BASED ON AASHTO GUIDE FOR DESIGN OF PAVEMENT STRUCTURES 1993.
NOTE: THE BAR SPACING WILL BE BASED FROM THICKNESS OF THE NEW PAVEMENT

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION XI
DAVAO DEL NORTE
2ND DISTRICT ENGINEERING OFFICE
TAGUM CITY

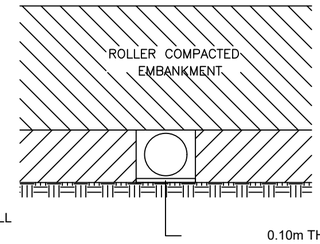
PROJECT NAME AND LOCATION:	SHEET CONTENTS:	DRAFTED:	REVIEWED:	SUBMITTED:	RECOMMENDED:	APPROVED:	SET NO.	SHEET NO.
TAGUM-PANABO CIRCUM RD. - K1515+670 - K1517+165	STANDARD PORTLAND CEMENT CONCRETE PAVEMENT JOINTS	**HERWIN EVAN J. HABABAG** ENGINEER II PREPARED: **WARREN S. PIÑEZ** ENGINEER II	**BENILDA S. PACQUIAO** ENGINEER III DATE:	**JEZABEL E. TULING, MPA** CHIEF, PLANNING AND DESIGN SECTION DATE:	**GARRY E. VERANO** OFFICER-IN-CHARGE OFFICE OF THE ASSISTANT DISTRICT ENGINEER DATE:	**ARTURO R. LONGYAPON** DISTRICT ENGINEER DATE:	F 1 1	6 31



STEP –1–CONSTRUCT COMPACTED EMBANKMENT TO AN ELEVATION ABOVE TOP OF PROPOSED PIPE

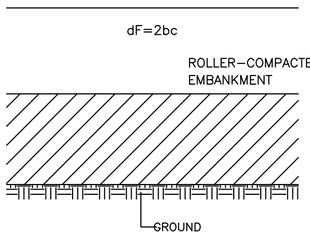


STEP –2–TRENCH THROUGH THIS COMPACTED EMBANKMENT AND INSTALL PIPE BACKFILL WITH COMPACTED GRANULAR MATERIAL

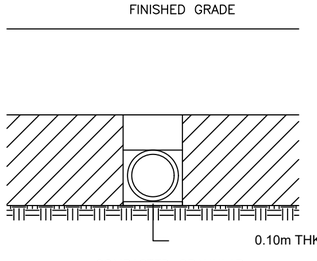


STEP –3–COMPLETE EMBANKMENT IN USUAL MANNER

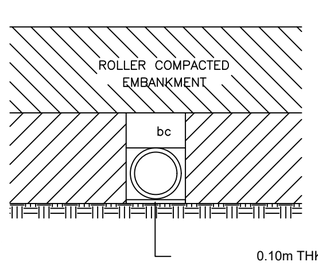
CALIFORNIA METHOD A



STEP –1–CONSTRUCT COMPACTED EMBANKMENT TO A TOTAL DEPTH EQUAL TO TWICE THE OUTSIDE DIA. OF THE PIPE.



STEP –2–TRENCH THROUGH THIS COMPACTED EMBANKMENT AND INSTALL PIPE BACKFILL WITH COMPACTED GRANULAR MATERIAL TO TOP OF PIPE

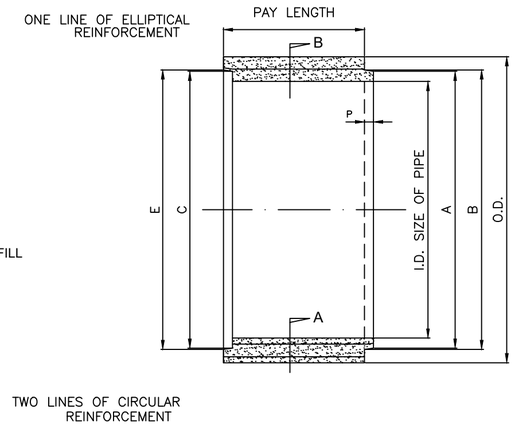


STEP –3–FILL REMAINDER OF TRENCH WITH BACKFILL PLACE IN LOOSEST POSSIBLE CONDITION. COMPLETE EMBANKMENT IN NORMAL MANNER.

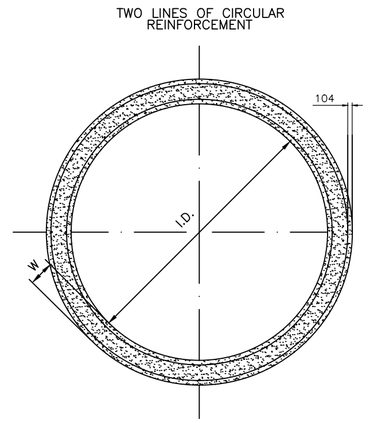
CALIFORNIA METHOD B

METHODS OF PIPE INSTALLATION

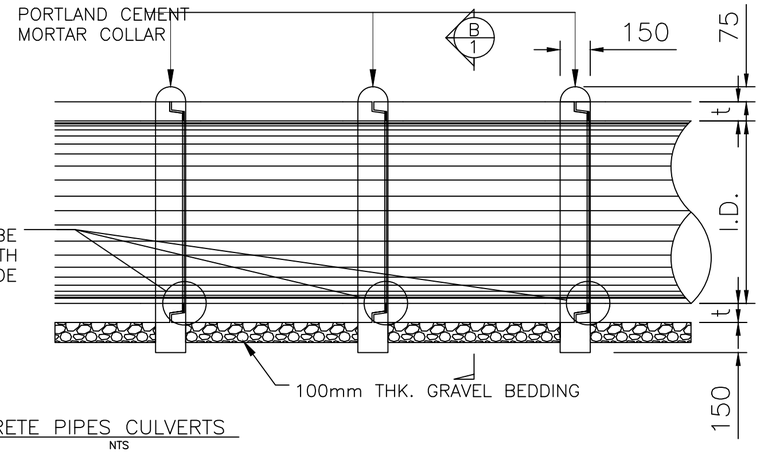
SIZE OF PIPE		CONCRETE 317 KG./SQ. CM. (4,500 LB/SQ.IN.)						
IN.	M.	WALL THICKNESS (M)	TONGUE (M)		GROOVE (M)		DEPTH (M)	MINIMUM REINFORCEMENT SQ.CM./M. OF PIPE *
		W	A	B	C	E	P	CIRCULAR REINFORCEMENT
36”	0.910	0.086	0.988	1.007	0.994	1.013	0.064	2 LINE EACH 4.66



LONGITUDINAL SECTION
SCALE NTS



SECTION A
SCALE NTS



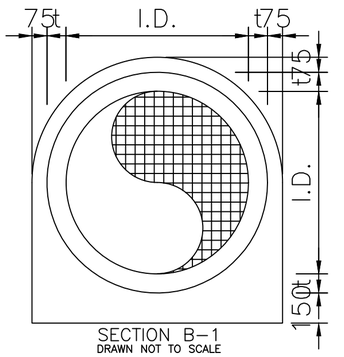
DESIGN REQUIREMENTS OF REINFORCED CONCRETE PIPES CULVERTS
SCALE NTS

- THE DISTANCE FORM CENTERLINE OF THE REINFORCEMENT TO THE NEAREST SURFACE OF THE CONCRETE HAS BEEN ASSUMED AS 0.032 M. FOR PIPES WITH A SHELL THICKNESS OF 0.064 M. OR MORE.

NOTE:
DESIGN REQUIREMENTS ARE BASED ON THE SPECIFICATIONS FOR MATERIALS OF AASHTO M-170.

DRAINAGE SCHEDULE

Station	Description	103(1)a	103(1)a	500(1)b3	DRAINAGE PARAMETERS Q	A	V
		cu.m.	cu.m.	l.m.			
K1515+760.00 - K1516+420.00	INSTALL 1-36" Ø LATERAL RCPC B/S			100			
K1515+760.00 - K1516+420.00	INSTALL SERVICE HOLE EVERY 20.00 MTRS. B/S						
	TOTAL	29.90	29.90	79.00			
	SAY	29.00	29.00	79.00			



SECTION B–1
DRAWN NOT TO SCALE

DETAIL OF RCPC JOINT

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION XI
DAVAO DEL NORTE
2ND DISTRICT ENGINEERING OFFICE
TAGUM CITY

PROJECT NAME AND LOCATION: **TAGUM-PANABO CIRCUM RD. - K1515+670 - K1517+165**

SHEET CONTENTS: METHODS OF PIPE INSTALLATION DRAINAGE SCHEDULE

DRAFTED: **HERWIN EVAN J. HABABAG** ENGINEER II
PREPARED: **WARREN S. PIÑEZ** ENGINEER II

REVIEWED: **BENILDA S. PACQUIAO** ENGINEER III DATE:

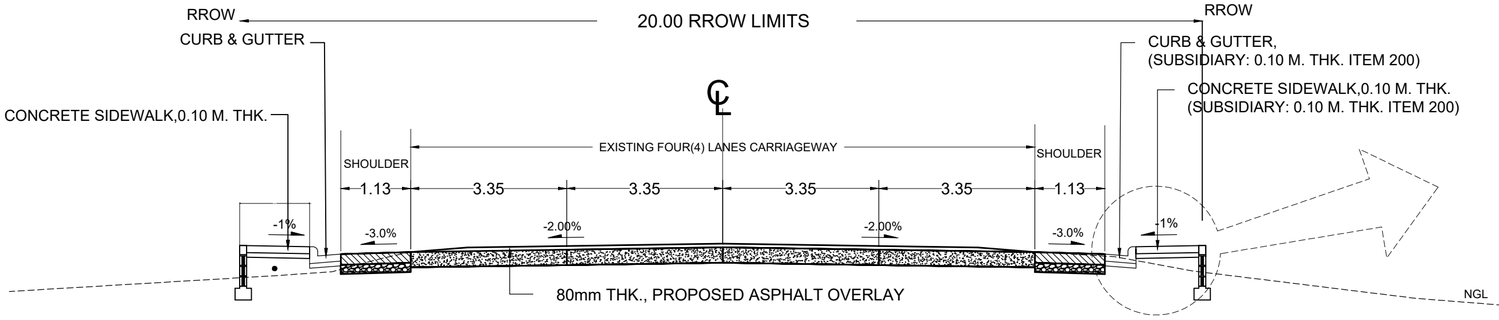
SUBMITTED: **JEZABEL E. TULING, MPA** CHIEF, PLANNING AND DESIGN SECTION DATE:

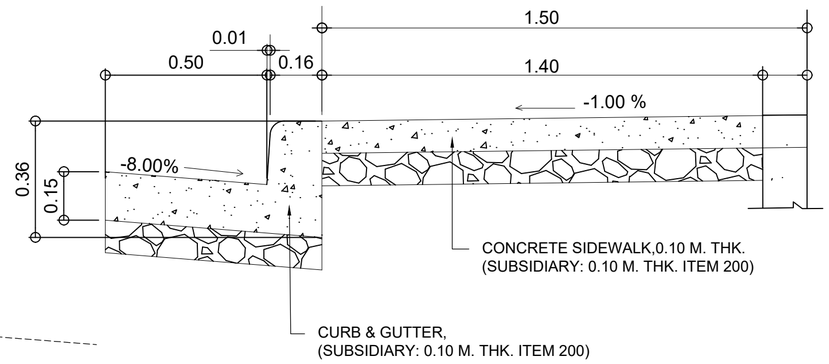
RECOMMENDED: **GARRY E. VERANO** OFFICER-IN-CHARGE OFFICE OF THE ASSISTANT DISTRICT ENGINEER DATE:

APPROVED: **ARTURO P. LONGYAPON** DISTRICT ENGINEER DATE:

SET NO. G 1 1

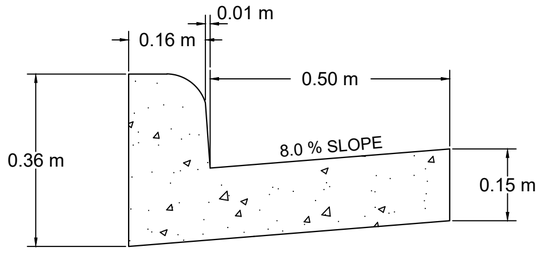
SHEET NO. 7 / 31

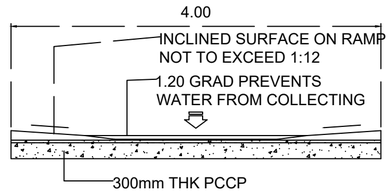


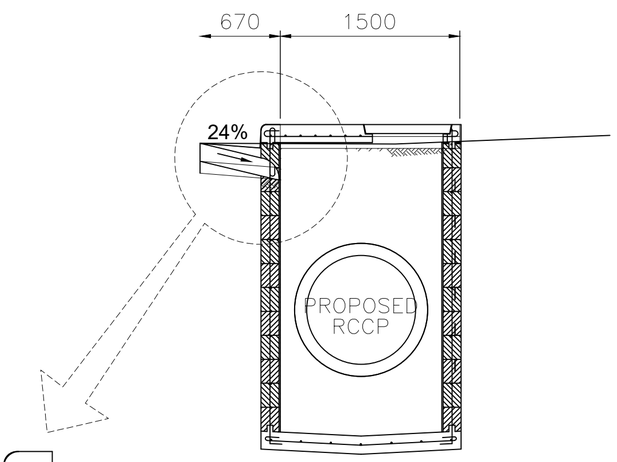


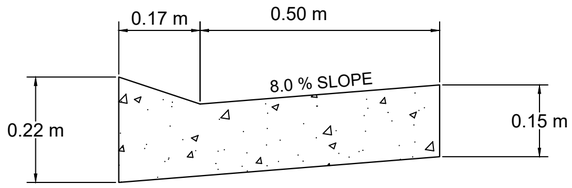
CONCRETE SIDEWALK DETAIL

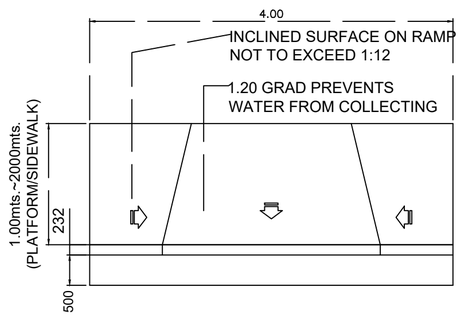
N T S

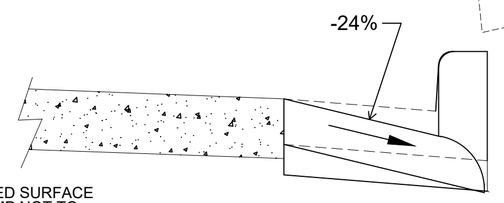








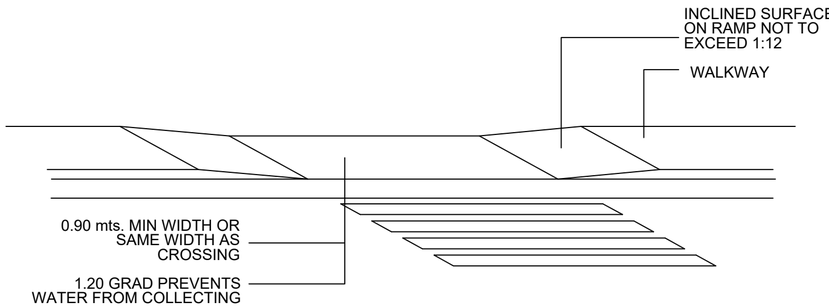




DROP CURBS SHALL BE USED ON
ENTRANCE and DRIVEWAYS

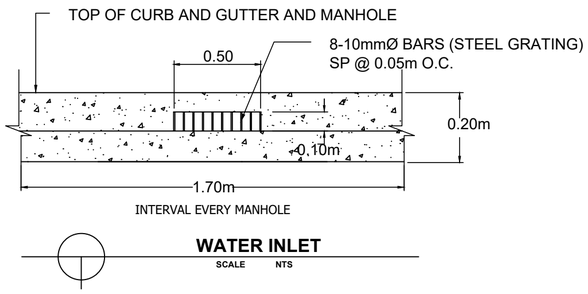
CURB & GUTTER DETAIL

SCALE **1 : 10 mts.**



DROPPED CURB DETAIL

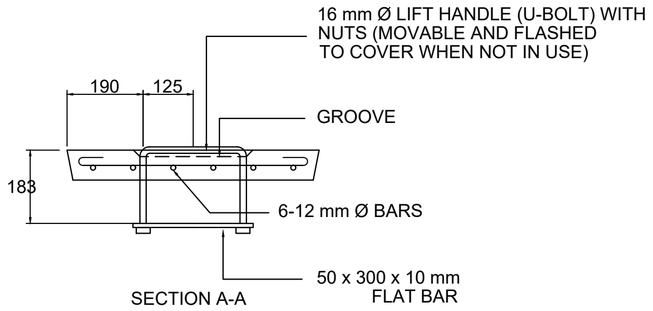
SCALE **1 : 10 mts.**



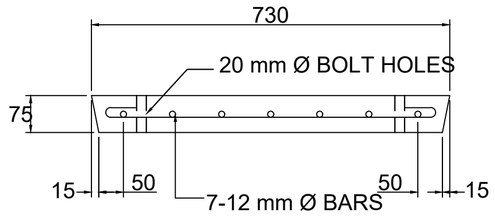
WATER INLET

SCALE **NTS**

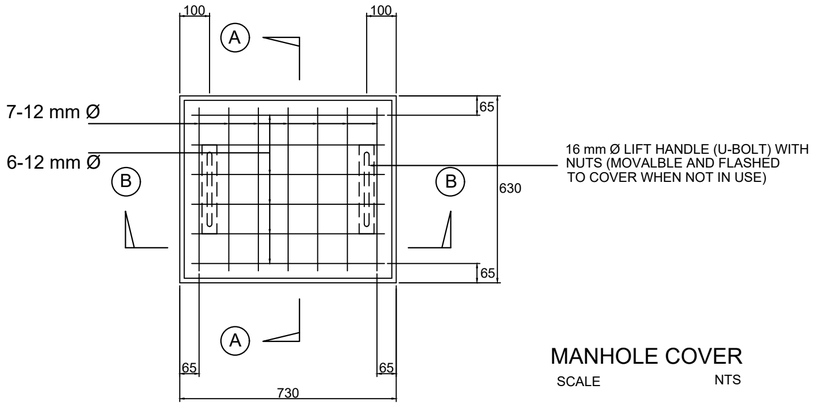
REPUBLIC OF THE PHILIPPINES **DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS** REGION XI DAVAO DEL NORTE 2ND DISTRICT ENGINEERING OFFICE TAGUM CITY	PROJECT NAME AND LOCATION: **TAGUM-PANABO CIRCUM RD. - K1515+670 - K1517+165**	SHEET CONTENTS: CONCRETE SIDEWALK DETAIL CURB AND GUTTER DETAIL DROPPED CURB DETAIL	DRAFTED: **HERWIN EVAN J. HABABAG** ENGINEER II PREPARED: **WARREN S. PIÑEZ** ENGINEER II	REVIEWED: **BENILDA S. PACQUIAO** ENGINEER III DATE:	SUBMITTED: **JEZABEL E. TULING, MPA** CHIEF, PLANNING AND DESIGN SECTION DATE:	RECOMMENDED: **GARRY E. VERANO** OFFICER-IN-CHARGE OFFICE OF THE ASSISTANT DISTRICT ENGINEER DATE:	APPROVED: **ARTURO P. LONGYAPON** DISTRICT ENGINEER DATE:	SET NO. H 1 1	SHEET NO. 8 31



SECTION A-A

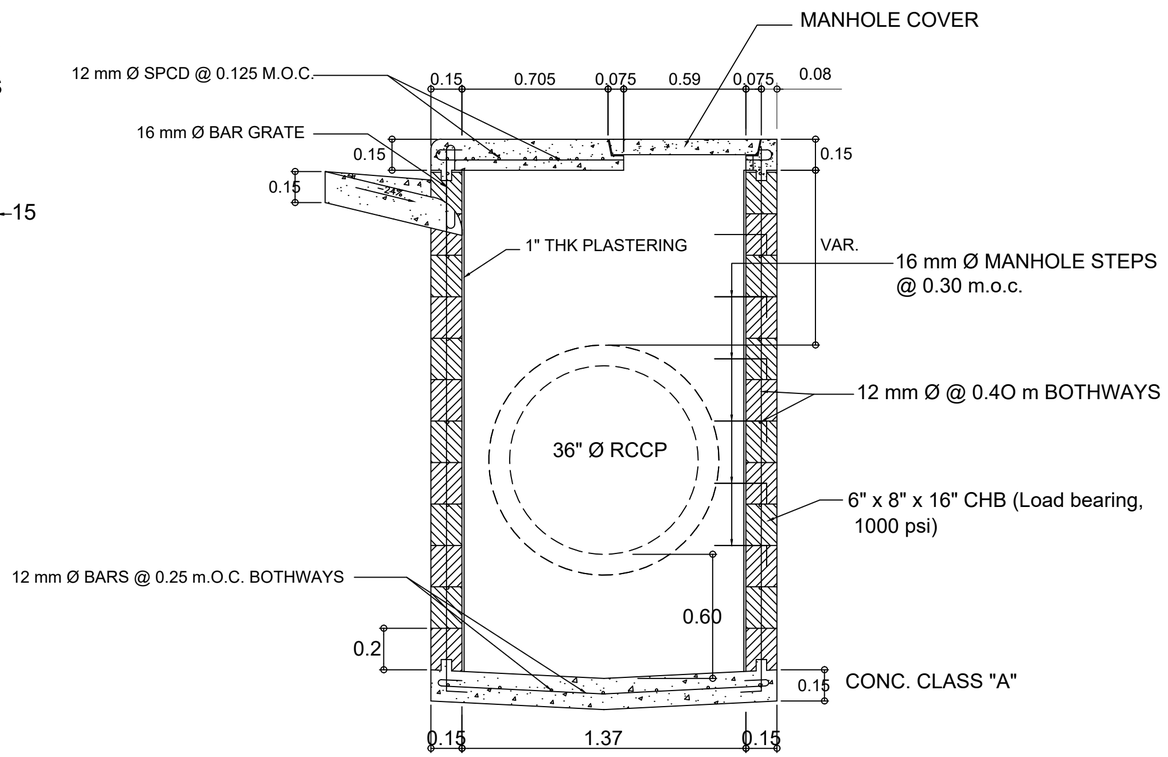


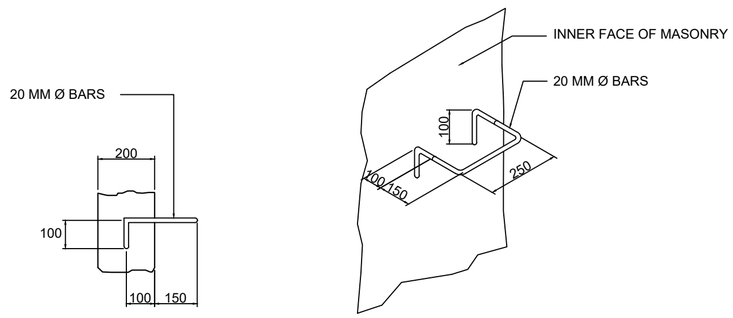
SECTION B-B



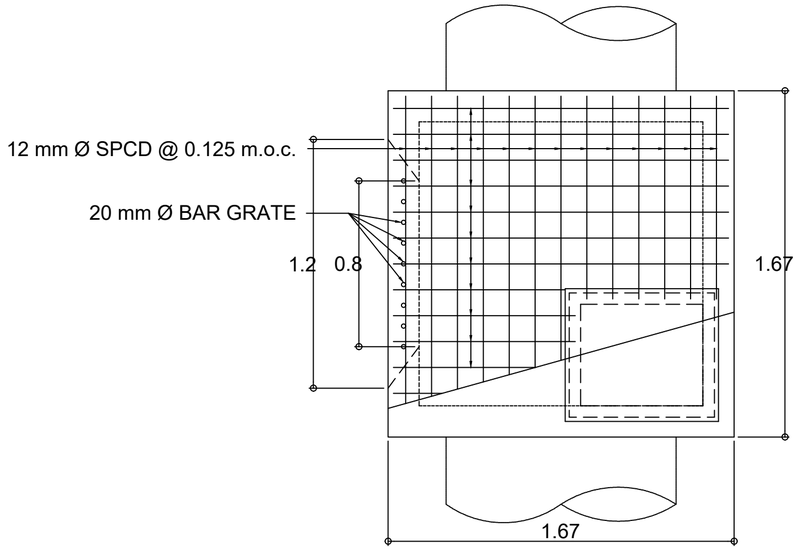
PLAN

MANHOLE COVER
SCALE NTS





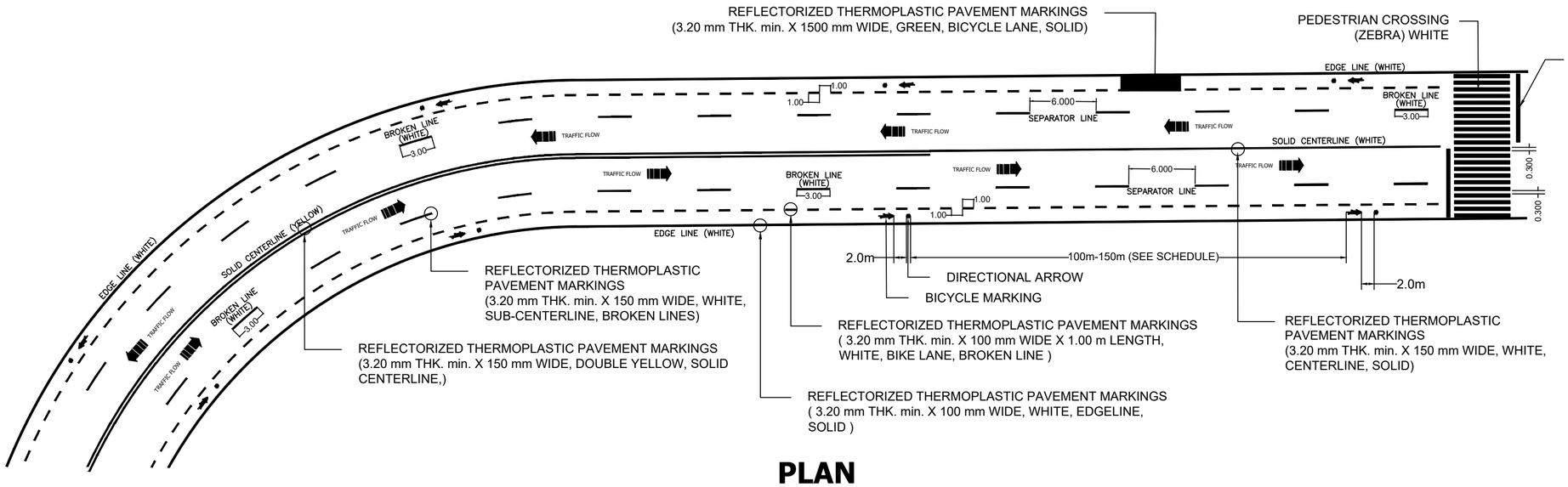
MANHOLE STEPS
N T S



MANHOLE DETAIL

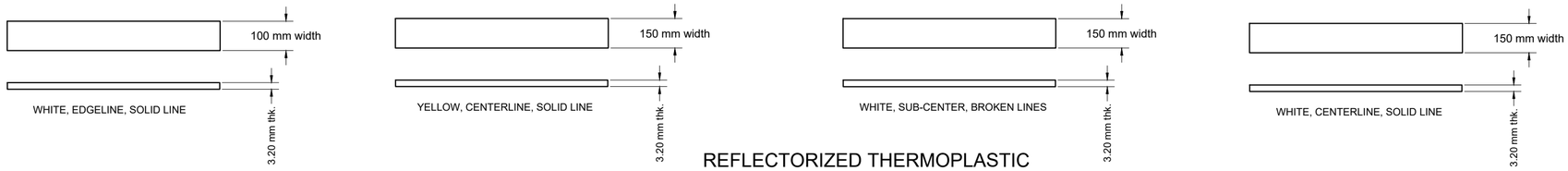
REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION XI
DAVAO DEL NORTE
2ND DISTRICT ENGINEERING OFFICE
TAGUM CITY

PROJECT NAME AND LOCATION:	SHEET CONTENTS:	DRAFTED:	REVIEWED:	SUBMITTED:	RECOMMENDED:	APPROVED:	SET NO.	SHEET NO.
TAGUM-PANABO CIRCUM RD. - K1515+670 - K1517+165	MANHOLE DETAIL	**HERWIN EVAN J. HABABAG** ENGINEER II PREPARED: **WARREN S. PIÑEZ** ENGINEER II	**BENILDA S. PACQUIAO** ENGINEER III DATE:	**JEZABEL E. TULING, MPA** CHIEF, PLANNING AND DESIGN SECTION DATE:	**GARRY E. VERANO** OFFICER-IN-CHARGE OFFICE OF THE ASSISTANT DISTRICT ENGINEER DATE:	**ARTURO P. LONGYAPON** DISTRICT ENGINEER DATE:	I 1 1	9 31



PLAN

SCALE NTS



REFLECTORIZED THERMOPLASTIC PAVEMENT MARKINGS DETAIL

REFLECTORIZED THERMOPLASTIC PAVEMENT MARKINGS SCHEDULE

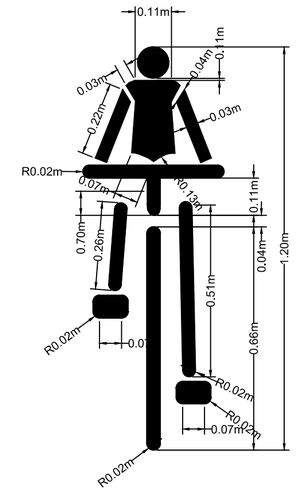
STATION	LENGTH (W = 0.10 m) EDGE LINE	SOLID (W = 0.15 m)	BROKEN LINES (W = 0.15 m L = 3.0 m)		BICYCLE LANE (W = 0.15 m L = 1.0 m)		PEDESTRIAN CROSSING BAR (w= 0.30 m. , L= 4.00 m./ strip)	STOP LINE BAR (W= 0.30 m.)	AREA (SQ.M.)	REMARKS
			LENGTH	No. OF STRIPS	LENGTH	No. OF STRIPS	No. OF STRIPS			
K1515+670.00 - K1517+165.00 K1517+165.00 - K1517+170.00 (TRANSITION RAMP)	1,482.00								297.40	WHITE, EDGELINE (SOLID LINE)
K1515+670.00 - K1517+165.00 K1517+165.00 - K1517+170.00 (TRANSITION RAMP)			1,482.00	165.00					148.50	WHITE, SUB-CENTER (BROKEN LINES)
K1515+670.00 - K1517+165.00 K1517+165.00 - K1517+170.00 (TRANSITION RAMP)		1,147.00							172.05	WHITE, CENTERLINE (SOLID LINE)
K1515+670.00 - K1517+165.00 K1517+165.00 - K1517+170.00 (TRANSITION RAMP)					1,482.00	744.00			223.20	WHITE, (BROKEN LINE, FOR BIKE LANE)
SEE TABLE BELOW									13.80	WHITE, BICYCLE MARKINGS & DIRECTONAL ARROW
						ITEM 612(1) TOTAL			854.95	
K1516+380 - K1516+720									102.00	YELLOW, CENTERLINE (DOUBLE SOLID LINE)
						ITEM 612(2) TOTAL			102.00	
						ITEM 612(4) TOTAL			81.00	GREEN, DRIVEWAY/RAMP (SOLID)

SCHEDULE OF BICYCLE MARKINGS & DIRECTIONAL ARROW

STATION	LOCATION	STATION	LOCATION
K1515+700	BS	K1516+700	BS
K1515+800	BS	K1516+800	BS
K1515+900	BS	K1516+900	BS
K1516+000	BS	K1517+000	BS
K1516+100	BS	K1517+100	BS
K1516+200	BS		
K1516+300	BS		
K1516+400	BS		
K1516+500	BS		
K1516+600	BS		

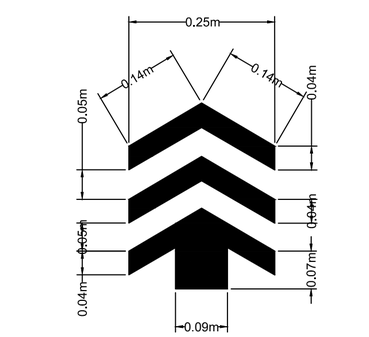
REFLECTORIZED THERMOPLASTIC PAVEMENT MARKINGS SCHEDULE (GREEN)

STATION	LENGTH	LOCATION
1515 + 680.00	6.00	RS
1516 + 428.00	6.00	LS
1516 + 563.00	6.00	RS
1516 + 592.00	10.00	RS
1516 + 930.00	6.00	RS
1516 + 983.00	6.00	RS
1517 + 563.00	6.00	LS
1517 + 143.00	6.00	RS



REFLECTORIZED THERMOPLASTIC BICYCLE MARKINGS DETAIL

NTS



REFLECTORIZED THERMOPLASTIC DIRECTIONAL ARROW DETAIL

NTS

GENERAL NOTES: THERMOPLASTIC PAVEMENT MARKINGS

1. THE MATERIALS, DIMENSIONS, SHAPE, COLOR, SIZE OF NUMERALS, LETTERS AND INSTALLATION SHALL CONFORM IN ACCORDANCE WITH SPECIFICATIONS OF DPWH MANUAL ON PAVEMENT MARKINGS.

2. REFLECTORIZED THERMOPLASTIC PAVEMENT STRIPPING MATERIAL SHALL CONFORM TO AASHTO M249 IN WHICH THE ROAD MUST BE APPLIED IN A MOLTEN STATE BY MECHANICAL MEANS WITH SURFACE APPLICATION OF GLASS BEADS AT A RATE OF NOT LESS THAN 350 g/L OF GLASS BEADS HAVING A SIZE RANGE OF DROP-IN TYPE AND WILL PRODUCE AN ADHERENT REFLECTORIZED STRIPE OF SPECIFIED THICKNESS AND WIDTH CAPABLE OF RESISTING DEFORMATION BY TRAFFIC.

GENERAL NOTES: THERMOPLASTIC PAVEMENT MARKINGS (FOR BICYCLE LANE - CLASS III "SHARED ROADWAY")

1. THE SHARED USE PATH AND BIDIRECTIONAL SEPARATED BIKE LANE SHALL BE SEPARATED WITH SOLID WHITE LINE PAVEMENT MARKINGS WITH WIDTH 100mm AND CONSIDERATION OF APPROPRIATE INFORMATORY SIGN TO GUIDE AND SEPARATE THE CYCLISTS FROM PEDESTRIANS AND OTHER USERS ALONG THE PATH.

2. BICYCLE LANE SYMBOL AND/OR ARROW MARKINGS FOR SHARED USE PATH AND SEPARATED BIKE LANE USING PHYSICAL SEPARATORS SHALL BE PLACED AT THE BEGINNING OF A CYCLE TRACK, INTERSECTION AND AT PERIODIC INTERVALS OF 100m MINIMUM AND NOT GREATER THAN 300m.

3. GREEN PAVEMENT MARKINGS SHALL BE USED TO IDENTIFY THE CONFLICT AREA OPPOSITE THE DRIVEWAY TO MAKE IT CLEAR THAT THE BICYCLE HAS PRIORITY OVER THE ENTERING AND EXITING VEHICLE/TRAFFIC. THE LENGTH OF COLORED CONFLICT AREA SHALL BE EQUAL TO THE OPENING OF THE DRIVEWAY.

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION XI
DAVAO DEL NORTE
2ND DISTRICT ENGINEERING OFFICE
TAGUM CITY

PROJECT NAME AND LOCATION:
TAGUM-PANABO CIRCUM RD. - K1515+670 - K1517+165

SHEET CONTENTS:
REFLECTORIZED THERMOPLASTIC PAVEMENT MARKING DETAILS

DRAFTED:
HERWIN EVAN J. HABABAG
ENGINEER II

PREPARED:
WARREN S. PIÑEZ
ENGINEER II

REVIEWED:
BENILDA S. PACQUIAO
ENGINEER III
DATE:

SUBMITTED:
JEZABEL E. TULING, MPA
CHIEF, PLANNING AND DESIGN SECTION
DATE:

RECOMMENDED:
GARRY E. VERANO
OFFICER-IN-CHARGE
OFFICE OF THE ASSISTANT DISTRICT ENGINEER
DATE:

APPROVED:
ARTURO R. LONGYAPON
DISTRICT ENGINEER
DATE:

SET NO. J 1 1

SHEET NO. 10 / 31

GENERAL NOTES FOR WARNING SIGNS

1. ALL POST SHALL BE THOROUGHLY CLEANED, FREE FROM GREASE, SCALE AND RUSTS BE GIVEN ONE COAT OF RUST-INHIBITING PRIMING PAINT AND TWO COATS OF INTERNATIONAL ORANGE IN ACCORDANCE WITH ITEM 411, PAINT DPWH STANDARD SPECIFICATION.
2. ALL DETAILS SHALL COMPLY WITH THE DPWH STANDARD SPECIFICATIONS FOR ROAD SIGN, DO. 158, S. 2015

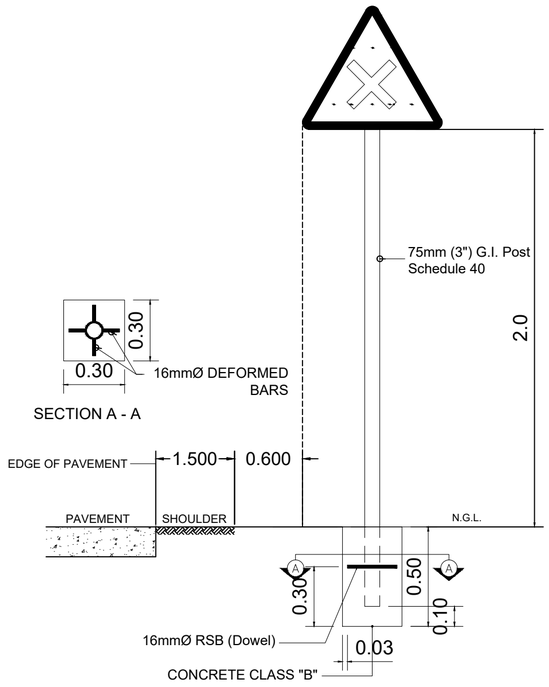
DESIGN

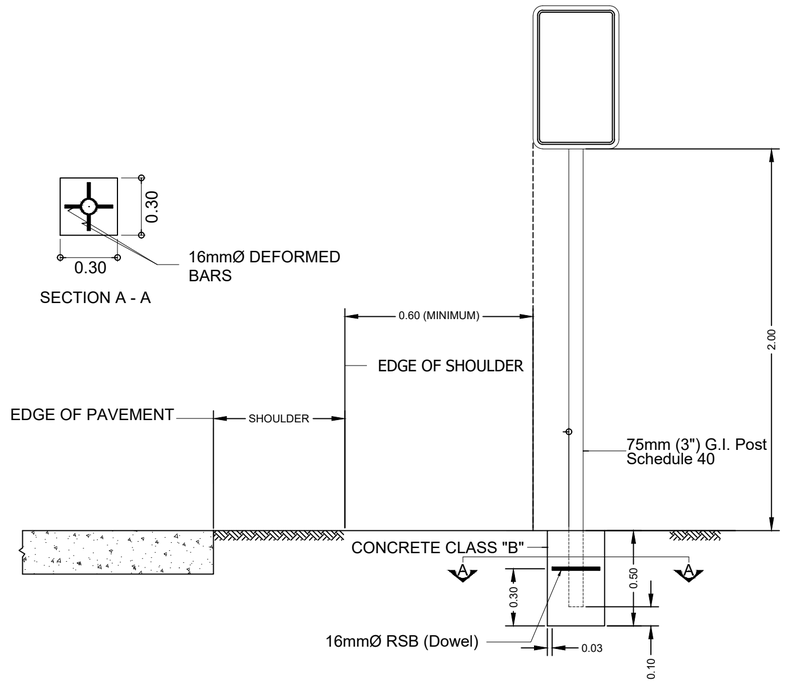
3. IN GENERAL, WARNING SIGNS ARE TRIANGULAR IN SHAPE (WITH ONE ANGLE VERTICAL), WITH A BLACK SYMBOL, REFLECTORIZED RED BORDER ON A RETRO-REFLECTIVE WHITE, OR FLUORESCENT YELLOW GREEN BACKGROUND.
4. THE SIDE OF ONE SIDE OF EQUILATERAL TRIANGULAR SHAPED SIGNS SHALL NOT BE LESS THAN 600 mm. FOR HIGH-SPEED EXPRESSWAYS, LARGER SIGNS (UP TO 1200 mm) ARE USUALLY ADOPTED.

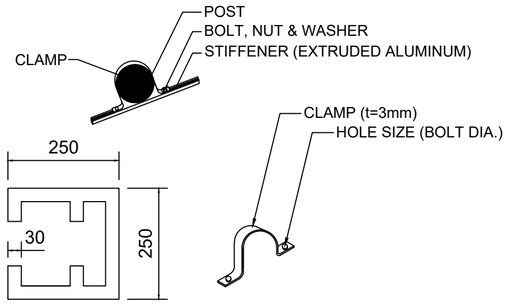
LOCATION

5. AS WARNING SIGNS ARE PLACED PRIMARILY FOR THE PROTECTIONOF THE DRIVER WHO IS NOT FAMILIAR WITH THE ROAD, IT IS VERY IMPORTANT THAT THEIR LOCATION AND INSTALLATION MUST BE UNDERTAKEN WITH CARE.

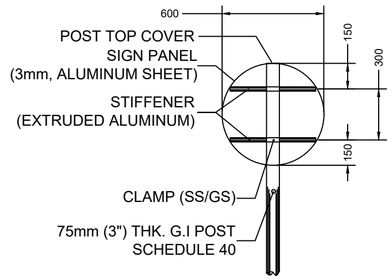
5.1 TEST RUNS SHOULD BE MADE BY DAY AND BY NIGHT FROM BOTH DIRECTIONS TO CHECK THE LOCATION AND MOUNTING OF EACH INSTALLATION.
5.2 A WARNING SIGN SHOULD BE GENERALLY BE INSTALLED ON THE RIGHT SIDE OF THE ROAD AND BE POSITIONED SO THAT IT WILL CONVEY ITS MESSAGE WITHOUT RESTRICTING LATERAL CLEARANCE OR SIGHT DISTANCE.
5.3 IN URBAN AREAS, ADVANCE WARNING SIGN SHOULD BE PLACED AT NOT LESS THAN 30.0 m. IN ADVANCE OF THE HAZARDOUS AREA.
5.4 EXACT LOACTION OF ALL WARNING SIGNS TO BE INSTALLED SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.

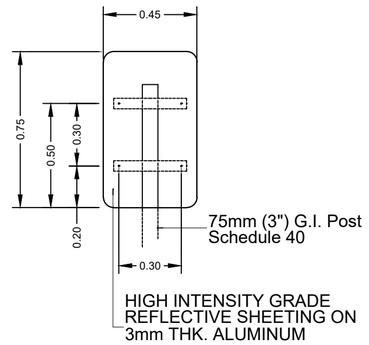


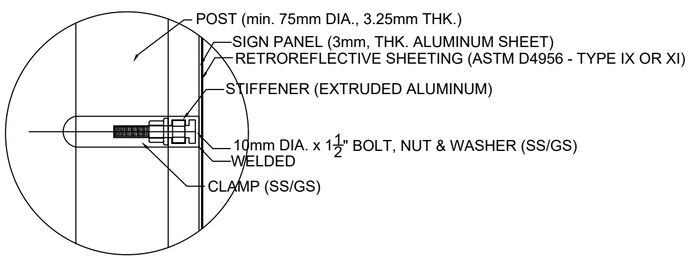




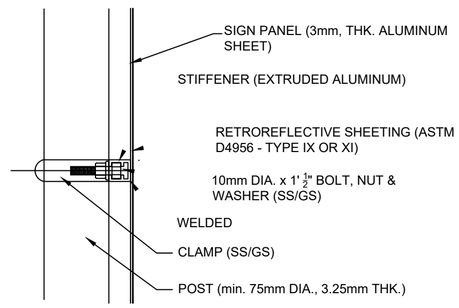
STIFFENER AND CLAMP DETAILS
SCALE NTS





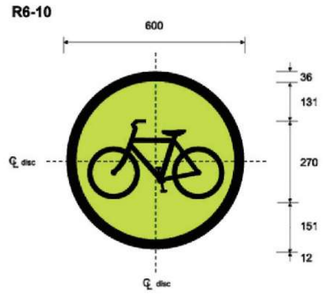


MOUNTING DETAILS
SCALE NTS



MOUNTING DETAILS
SCALE NTS

REPUBLIC OF THE PHILIPPINES **DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS** REGION XI DAVAO DEL NORTE 2ND DISTRICT ENGINEERING OFFICE TAGUM CITY	PROJECT NAME AND LOCATION: **TAGUM-PANABO CIRCUM RD. - K1515+670 - K1517+165**	SHEET CONTENTS: ROAD SIGNS DETAILS	DRAFTED: **HERWIN EVAN J. HABABAG** ENGINEER II PREPARED: **WARREN S. PIÑEZ** ENGINEER II	REVIEWED: **BENILDA S. PACQUIAO** ENGINEER III DATE:	SUBMITTED: **JEZABEL E. TULING, MPA** CHIEF, PLANNING AND DESIGN SECTION DATE:	RECOMMENDED: **GARRY E. VERANO** OFFICER-IN-CHARGE OFFICE OF THE ASSISTANT DISTRICT ENGINEER DATE:	APPROVED: **ARTURO R. LONGYAPON** DISTRICT ENGINEER DATE:	SET NO. K 1 2	SHEET NO. 11 31



SIGN NO	SIZE (dia. mm)
R6-10B	600 mm

BLACK SYMBOL, LEGEND AND BORDER.
REFLECTORIZED FLUORESCENT YELLOW
GREEN BACKGROUND

ROAD SIGNS SCHEDULES

TYPE	QTY.	STATION
	15	SEE STATION BELOW
	2	1515 + 670.00 @ RS 1517 + 140.00 @ LS
	2	1515 + 670.00 @ RS 1517 + 140.00 @ LS

WARNING SIGNS (W6-5B)

NTS

STATIONS FOR R6-10B			
STATION	LOCATION	STATION	LOCATION
K1515+700	RS	K1516+700	RS
K1515+800	LS	K1516+800	LS
K1515+900	RS	K1516+900	RS
K1516+000	LS	K1517+000	LS
K1516+100	RS	K1517+100	RS
K1516+200	LS		
K1516+300	RS		
K1516+400	LS		
K1516+500	RS		
K1516+600	LS		

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION XI
DAVAO DEL NORTE
2ND DISTRICT ENGINEERING OFFICE
TAGUM CITY

PROJECT NAME AND LOCATION:
TAGUM-PANABO CIRCUM RD. - K1515+670 - K1517+165

SHEET CONTENTS:
ROAD SIGNS AND REFLECTORIZED THERMOPLASTIC PAVEMENT MARKING SCHEDULES
GROUTED RIPRAP SLOPE PROTECTION DETAILS AND SCHEDULE

DRAFTED:
HERWIN EVAN J. HABABAG
ENGINEER II
PREPARED:
WARREN S. PIÑEZ
ENGINEER II

REVIEWED:
BENILDA S. PACQUIAO
ENGINEER III
DATE:

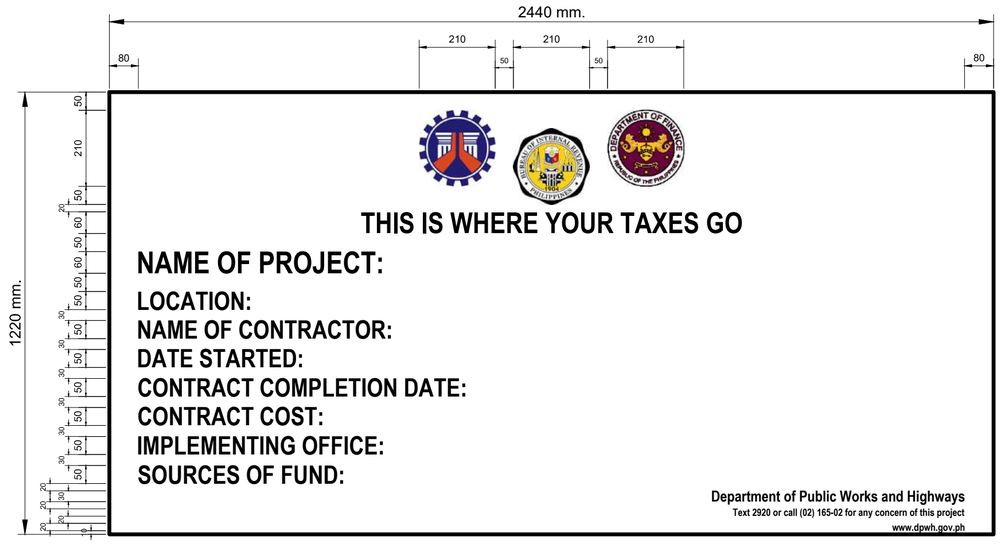
SUBMITTED:
JEZABEL E. TULING, MPA
CHIEF, PLANNING AND DESIGN SECTION
DATE:

RECOMMENDED:
GARRY E. VERANO
OFFICER-IN-CHARGE
OFFICE OF THE ASSISTANT DISTRICT ENGINEER
DATE:

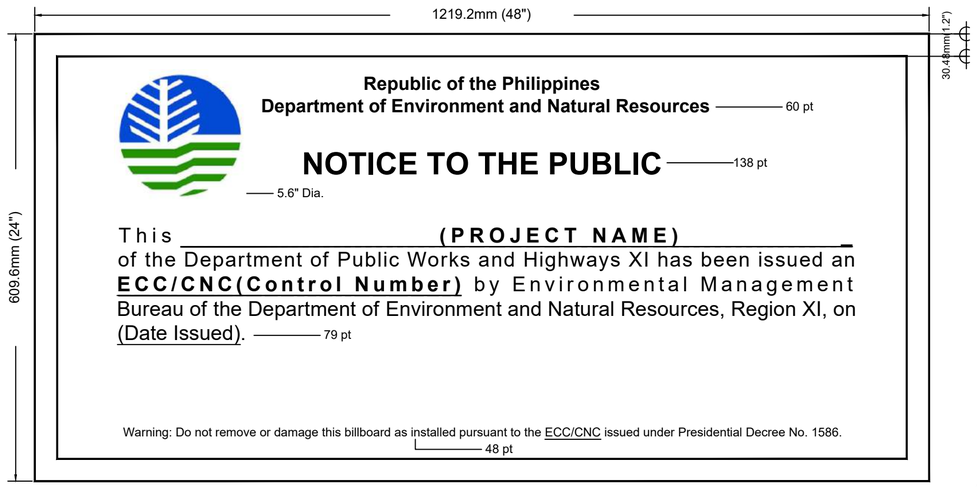
APPROVED:
ARTURO P. LONGYAPON
DISTRICT ENGINEER
DATE:

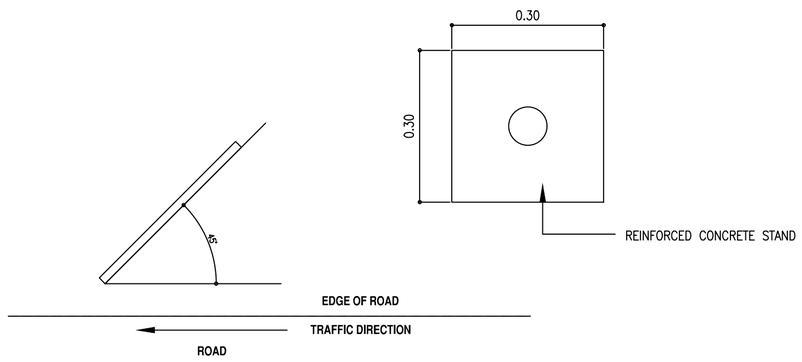
SET NO.: K 2 2

SHEET NO.: 12 / 31



DPWH STANDARD PROJECT BILLBOARD





BILLBOARD FRAME DETAIL

COA BILLBOARD

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION XI
DAVAO DEL NORTE
2ND DISTRICT ENGINEERING OFFICE
TAGUM CITY

Project:_____ Cost:_____
Location:_____ Fund Source/s:_____
Implementing Agency/ies:_____
Development Partner/s:_____
Contractor/Supplier:_____
Brief Description of Project:_____

Project Details:

PROJECT DATE			PROJECT STATUS				REMARKS
Duration	Started	Target Date of Completion	Percentage of Completion	As of (Date)	Cost Incurred to Date	Date Completed	

For particulars or complain about this project, please contact the Regional Office or Cluster which has audit jurisdiction on this project:

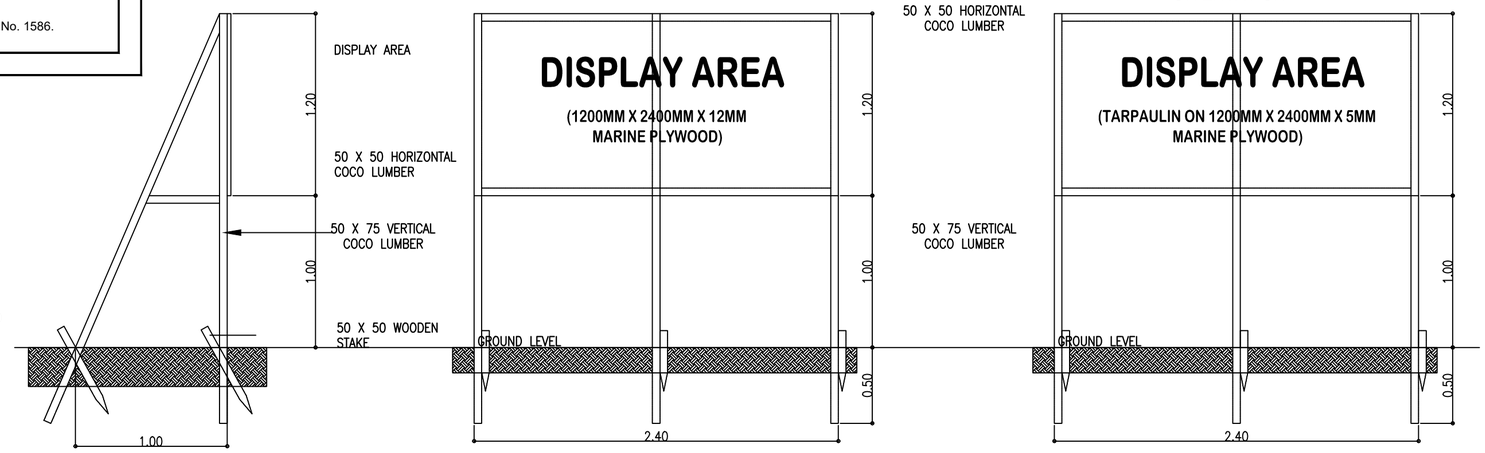
COA Regional Office No./Cluster:_____
Address:_____
Contact No.:_____or Text COA Citizen's Desk at 0915-5391957

2440 mm. (8 ft.)

WHITE BACKGROUND

2440 mm. (8 ft.)

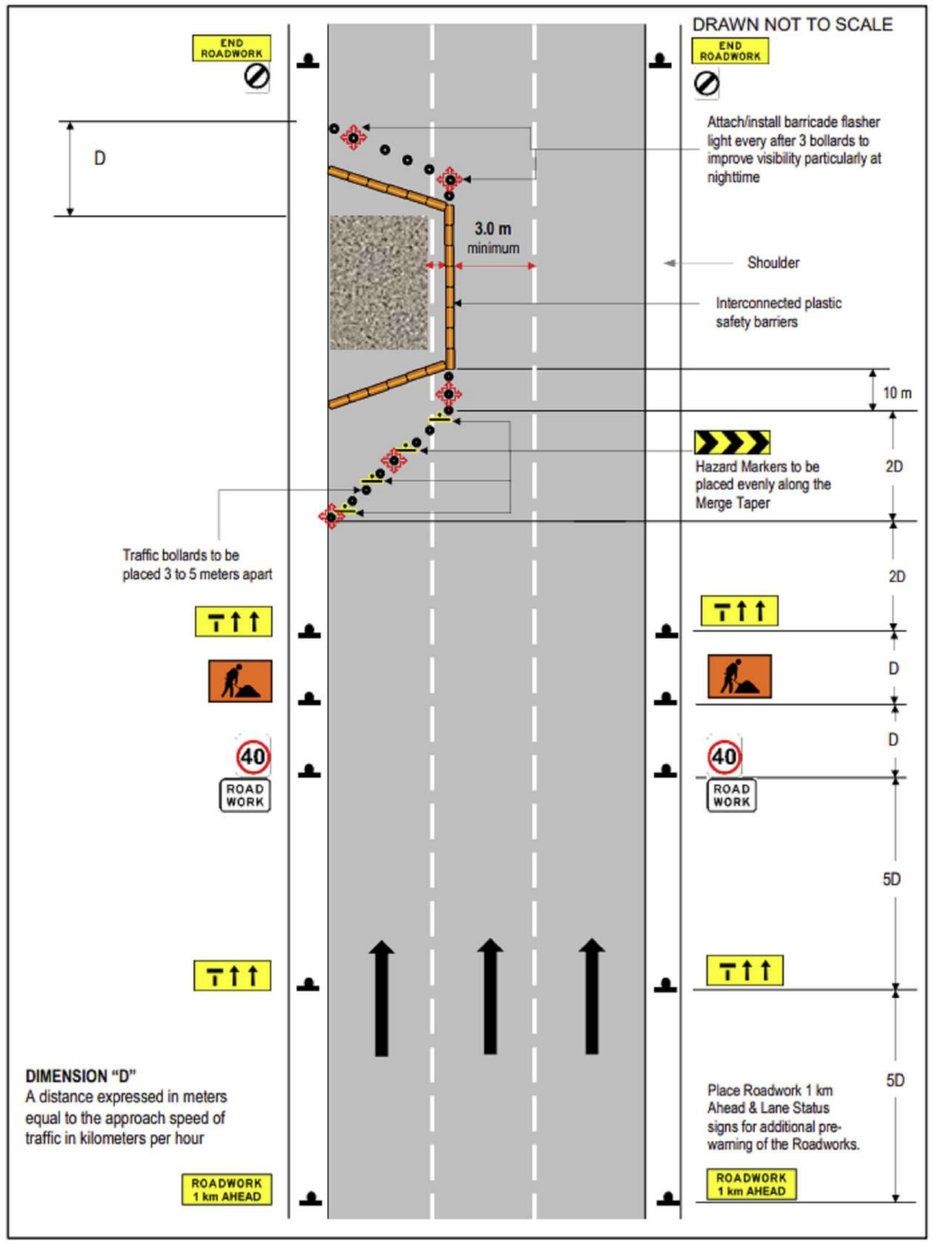
NOTE :
* INSTALLATION OF BILLBOARD SHALL BE ONE(1) AT THE BEGINNING & ONE(1) AT THE END OF THE PROJECT.
* NAMES OR PICTURES OF ANY PERSONAGES SHOULD NOT APPEAR IN THE BILLBOARD.
* NO POLITICAL BILLBOARD SHALL BE ALLOWED TO BE INSTALLED 100m BEFORE & 100m AFTER ALL DPWH PROJECTS & IN BETWEEN THE PROJECT LIMITS OR WITHIN THE ROAD-RIGHT-OF-WAY.
* DPWH CONTRACTORS SHALL NOT BE ALLOWED TO PLACE NAMES OF POLITICIANS ON THEIR EQUIPMENT OR CARRY POLITICAL BILLBOARD ON THEIR EQUIPMENT.



REPUBLIC OF THE PHILIPPINES **DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS** REGION XI DAVAO DEL NORTE 2ND DISTRICT ENGINEERING OFFICE TAGUM CITY	PROJECT NAME AND LOCATION: **TAGUM-PANABO CIRCUM RD. - K1515+670 - K1517+165**	SHEET CONTENTS: DPWH AND COA BILLBOARD DETAILS	DRAFTED: **HERWIN EVAN J. HABABAG** ENGINEER II PREPARED: **WARREN S. PIÑEZ** ENGINEER II	REVIEWED: **BENILDA S. PACQUIAO** ENGINEER III DATE:	SUBMITTED: **JEZABEL E. TULING, MPA** CHIEF, PLANNING AND DESIGN SECTION DATE:	RECOMMENDED: **GARRY E. VERANO** OFFICER-IN-CHARGE OFFICE OF THE ASSISTANT DISTRICT ENGINEER DATE:	APPROVED: **ARTURO R. LONGYAPON** DISTRICT ENGINEER DATE:	SET NO. L 1 1	SHEET NO. 13 31

ROAD & BRIDGE WORK SITE TEMPORARY SIGNAGE		SIGNAGE DESCRIPTION			
		SIGN NO.	SIZE (mm) (WIDTH x HEIGHT)	LETTERS/SYMBOLS	BACKGROUND
ADVANCE WARNING SIGNS					
	ROADWORK AHEAD	T1-1	1800 x 600	**LINE 1 - BLACK 200 DM** **LINE 1 - BLACK 160 DM**	YELLOW REFLECTORIZED
	END ROADWORK	T2-16	1800 x 600	**LINE 1 - BLACK 200 DM** **LINE 1 - BLACK 160 DM**	YELLOW REFLECTORIZED
	WORKMEN AHEAD (SYMBOLIC)	T1-5	900 x 600	BLACK	RED ORANGE/REFLECTORIZED FOR NIGHT USE
	LANE STATUS	T2-6-2	1800 x 900	BLACK 600 HIGH	YELLOW REFLECTORIZED
	SPEED RESTRICTION	R4-3	600 x 800 (SIZE B)	**BLACK 240 DN** **CIRCLE - 600 DIA. RED**	**WHITE REFLECTORIZED** **RED CIRCLE REFLECTORIZED**
	TEMPORARY HAZARD MARKER	T5-4	1500 x 450	**CHEVRONS** **BLACK 177 WIDE AY 45°**	WHITE REFLECTORIZED
	END SPEED RESTRICTION	R4-2	600 x 800 (SIZE B)	SYMBOL - 600 DIA. BLACK	WHITE REFLECTORIZED
	ROAD WORK	R4-3	600 x 400 (SIZE B)	**LINE 1 - BLACK 100 EM** **LINE 2 - BLACK 100 EM**	WHITE REFLECTORIZED

TRAFFIC MANAGEMENT LAY-OUT (LAY-OUT 9, CLOSURE OF INNER LANE, MULTILANE ROAD, HIGH SPEED, LONG TERM)



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION XI
DAVAO DEL NORTE
2ND DISTRICT ENGINEERING OFFICE
TAGUM CITY

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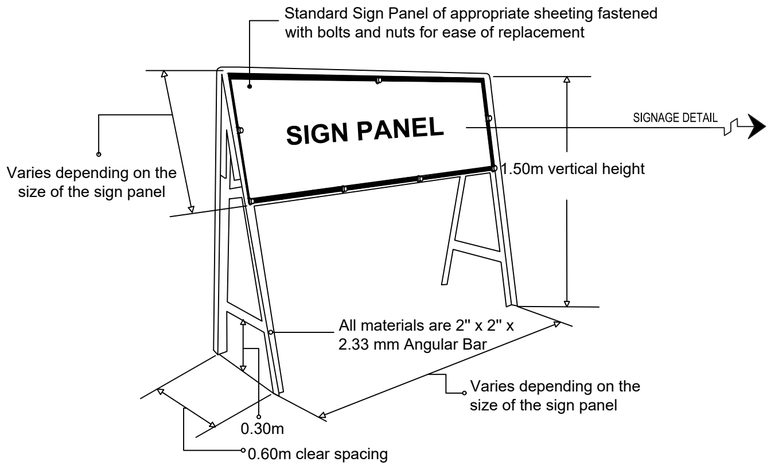
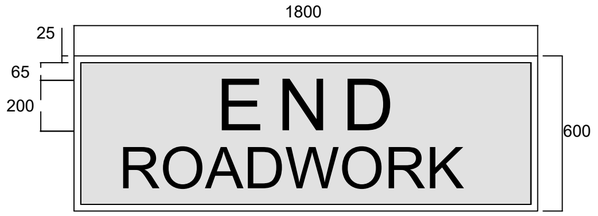
TAGUM-PANABO CIRCUM RD. - K1515+670 - K1517+165	TRAFFIC MANAGEMENT PLAN AND DETAILS	**HERWIN EVAN J. HABABAG** ENGINEER II PREPARED: **WARREN S. PIÑEZ** ENGINEER II	**BENILDA S. PACQUIAO** ENGINEER III DATE:	**JEZABEL E. TULING, MPA** CHIEF, PLANNING AND DESIGN SECTION DATE:	**GARRY E. VERANO** OFFICER-IN-CHARGE OFFICE OF THE ASSISTANT DISTRICT ENGINEER DATE:	**ARTURO P. LONGYAPON** DISTRICT ENGINEER DATE:	M 1 3	14 31

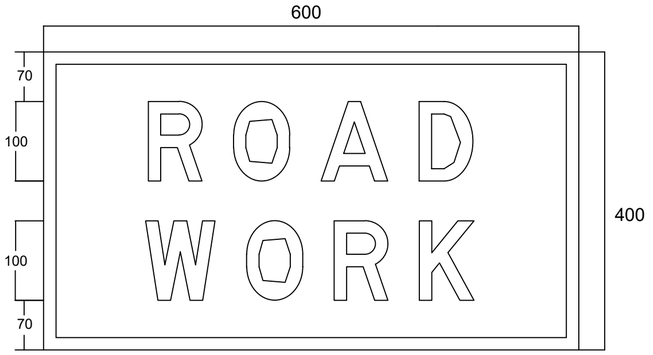


TWO SIDED SIGN FRAME DETAIL

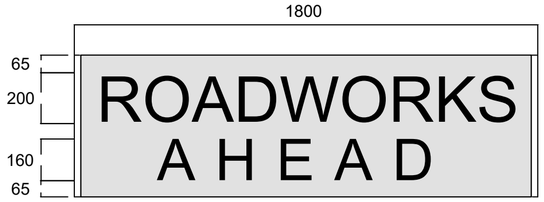


NOTE: BLACK LETTERS AND BORDER ON A YELLOW RETRO-REFLECTIVE BACKGROUND

END ROADWORK DETAIL

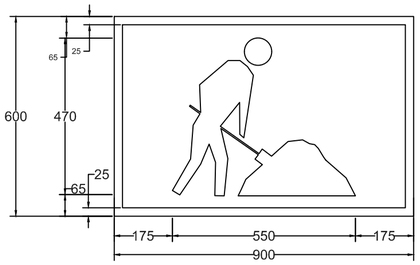


ROADWORK DETAIL



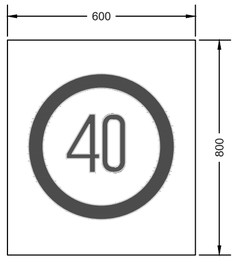
NOTE: BLACK LETTERS AND BORDER ON A YELLOW RETRO-REFLECTIVE BACKGROUND

ROAD WORK AHEAD DETAIL

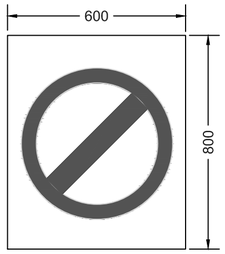


NOTE:
- BLACK SYMBOLS AND BORDER
- ORANGE RETRO-REFLECTIVE BACKGROUND

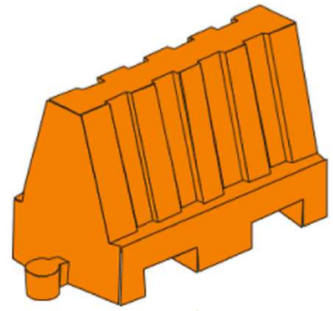
FOR NIGHTTIME USE



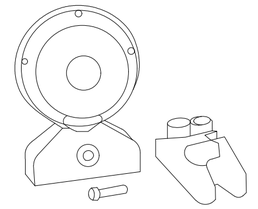
NOTE: BLACK NUMERALS ON A WHITE REFLECTORIZED BACKGROUND AND RED CIRCLE REFLECTORIZED



NOTE: BLACK SYMBOL ON A WHITE REFLECTORIZED BACKGROUND (600 DIA.)

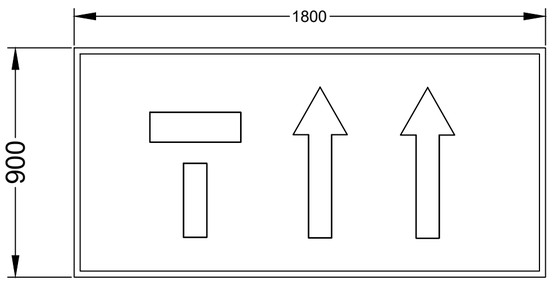


PLASTIC SAFETY BARRIER

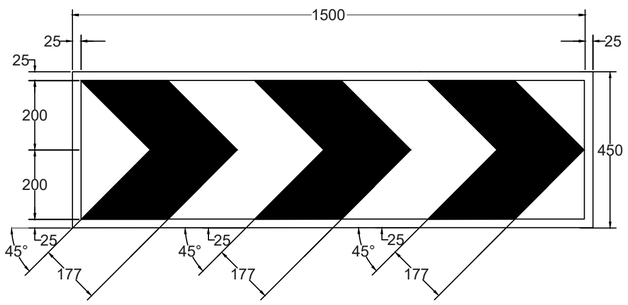


NOTE: FLASHER LIGHT 3 VOLTS, BATTERY OPERATED, AMBER COLOR W/ LIFESPAN CONSIDERATION OF 6 MONTHS

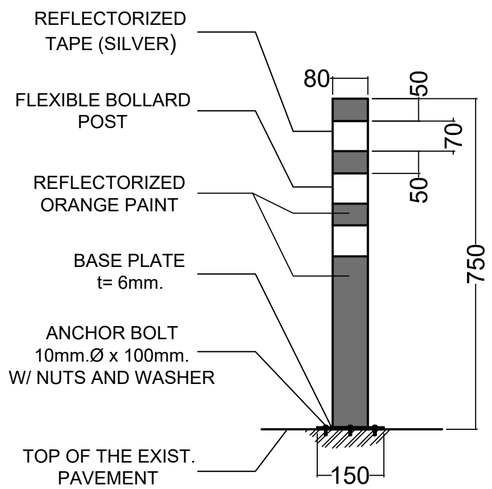
FLASHER LIGHT



NOTE: BLACK SYMBOLS AND BORDER ON A YELLOW RETRO-REFLECTIVE BACKGROUND



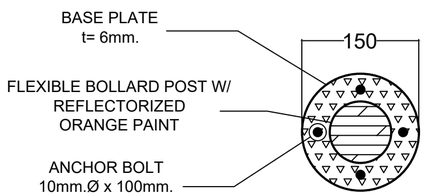
NOTE: BLACK SYMBOLS AND BORDER ON A YELLOW RETRO-REFLECTIVE BACKGROUND



NOTES:

1. Temporary bollards shall be fluorescent red or orange plastic that is resilient to impact and will not damage vehicles when hit at low speed.
2. The height of bollards is up to 1 meter
3. For night time operation the bollards must be fitted with reflective tape with a minimum bandwidth of 250mm.

(SEE LAY-OUT PLAN FOR THE STANDARD SPACING)



FLEXIBLE BOLLARD POST

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION XI
DAVAO DEL NORTE
2ND DISTRICT ENGINEERING OFFICE
TAGUM CITY

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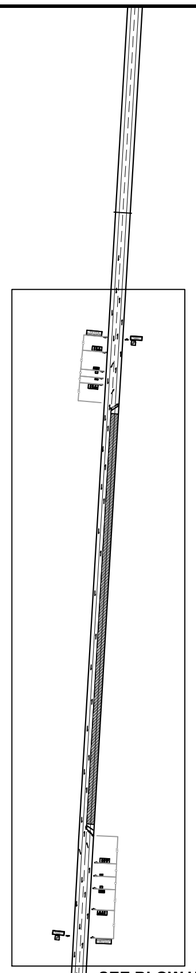
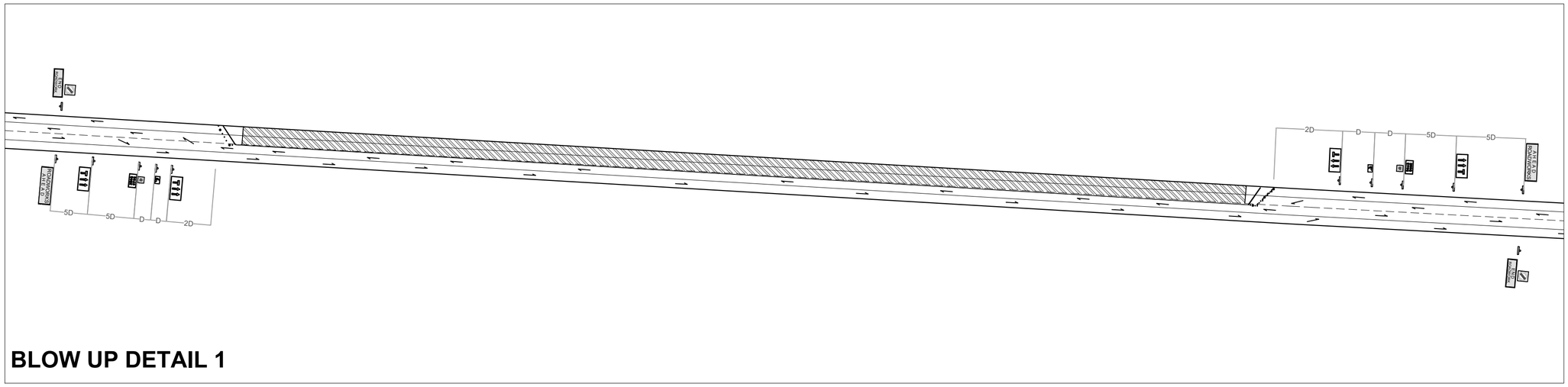


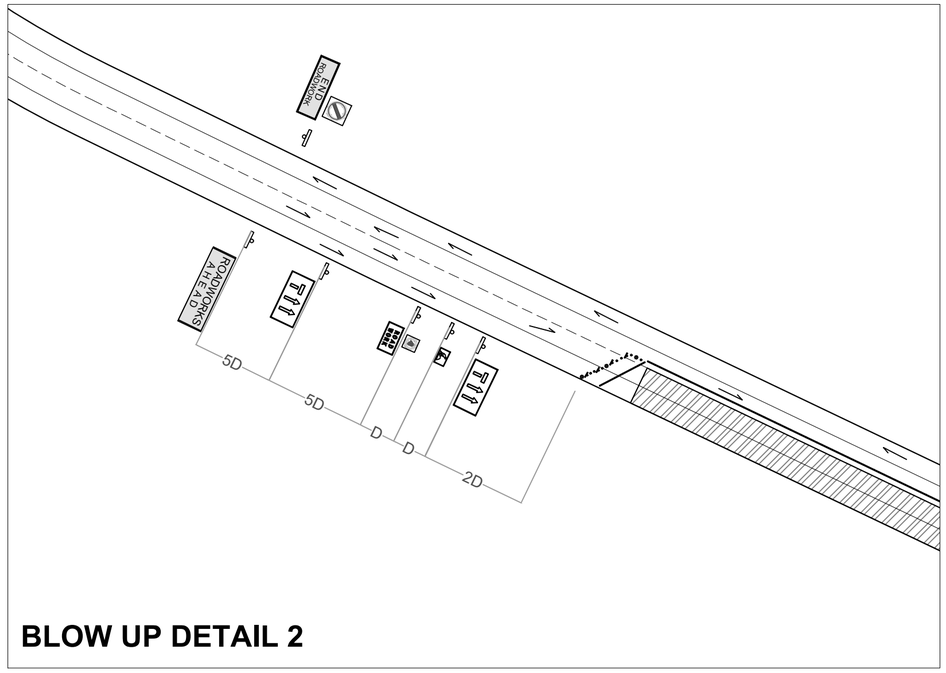
SEE BLOW UP DETAIL 1



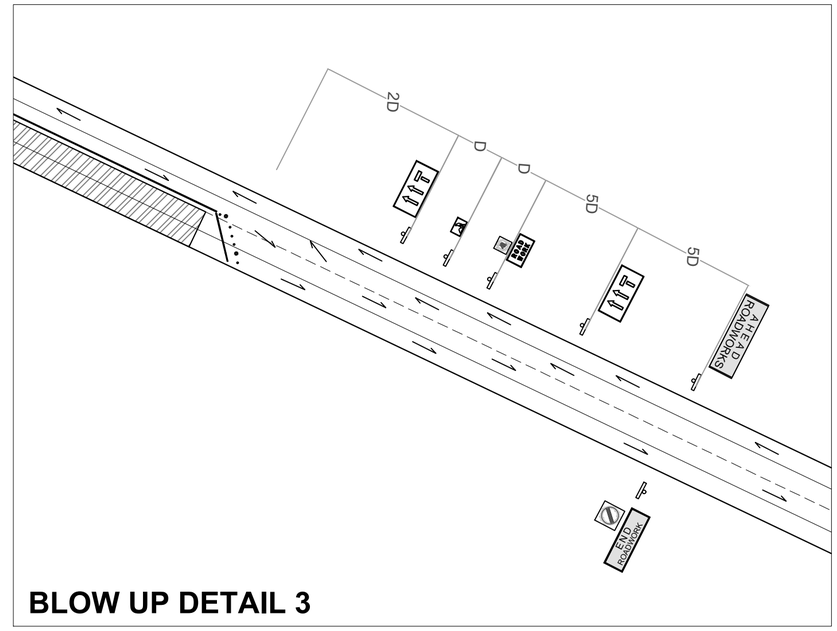
BLOW UP DETAIL 1

SEE BLOW UP DETAIL 2

SEE BLOW UP DETAIL 3



BLOW UP DETAIL 2



BLOW UP DETAIL 3

TRAFFIC MANAGEMENT PLAN

NOT TO SCALE

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION XI
DAVAO DEL NORTE
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TAGUM CITY

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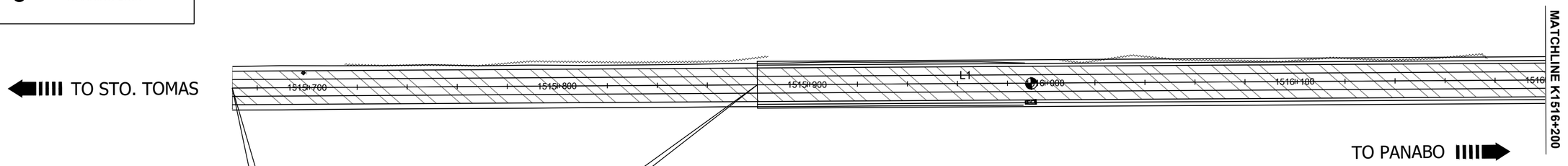
LEGEND:

- BENCH MARK
- PROPOSED ASPHALT OVERLAY
- CONTOUR
- WARNING SIGN

TRAVERSE LINE		
Line #	Length	Azimuth
L1	586.12	3-21-56.27



BEG. OF PROJECT
BEG. OF 4 LANES ASPHALT OVERLAY
AT STA. K1515+670.00
NORTHING: 812847.3857m; EASTING: 788506.8301m

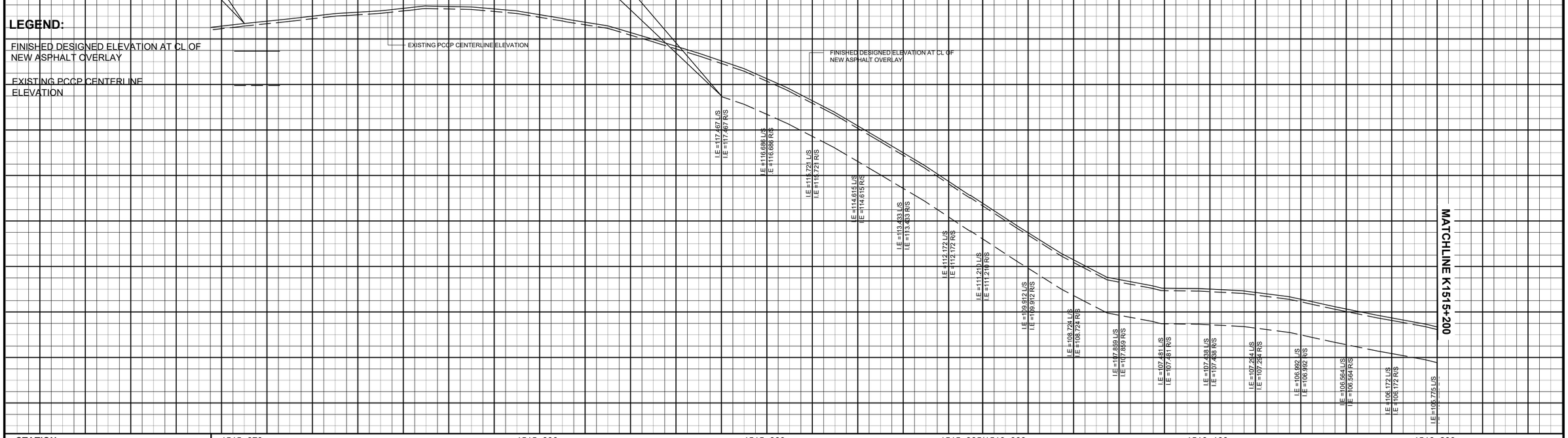
BEG. OF CONCRETE PAVING OF SHOULDERS AND SIDEWALK WITH CURB AND GUTTER B/S;
BEG. INSTALLATION OF LATERAL BLIND DRAINAGE CANAL (36" DIA. RCPC) AND 1-SERVICE HOLE AT EVERY 20.00 M. B/S AT K 1515+880

PLAN

SCALE 1:1250mts

PROFILE

SCALE 1:1250mts HOR.
SCALE 1:125mts VERT.



STATION	1515+670		1515+800									1515+900			1515+995/1516+000					1516+100				1516+200	
FINISHED DESIGNED ELEVATION AT CL OF NEW ASPHALT OVERLAY	120.783	120.783	121.003	121.176	121.347	121.430	121.322	120.068	120.737	120.284	119.679	119.035	118.254	117.286	116.183	115.001	113.740	112.778	111.487	111.487	109.427	109.049	109.006	108.862	108.560	108.132	107.740	107.343
EXISTING PCCP CENTERLINE ELEVATION	120.670	120.670	120.890	121.063	121.234	121.317	121.209	120.955	120.624	120.171	119.566	118.922	118.141	117.176	116.070	114.888	113.627	112.665	111.374	110.179	109.314	108.936	108.893	108.749	108.447	108.019	107.627	107.230
I.E OF BLIND DRAINAGE B/S												117.467	116.686	115.721	114.615	113.433	112.172	111.210	109.912	108.724	107.859	107.481	107.438	107.294	106.992	106.564	106.172	105.775
WIDENING	W=0																											
SUPER ELEVATION	NORMAL CROWN = -1.50%																											
	NORMAL CROWN = -1.50%																											

REPUBLIC OF THE PHILIPPINES
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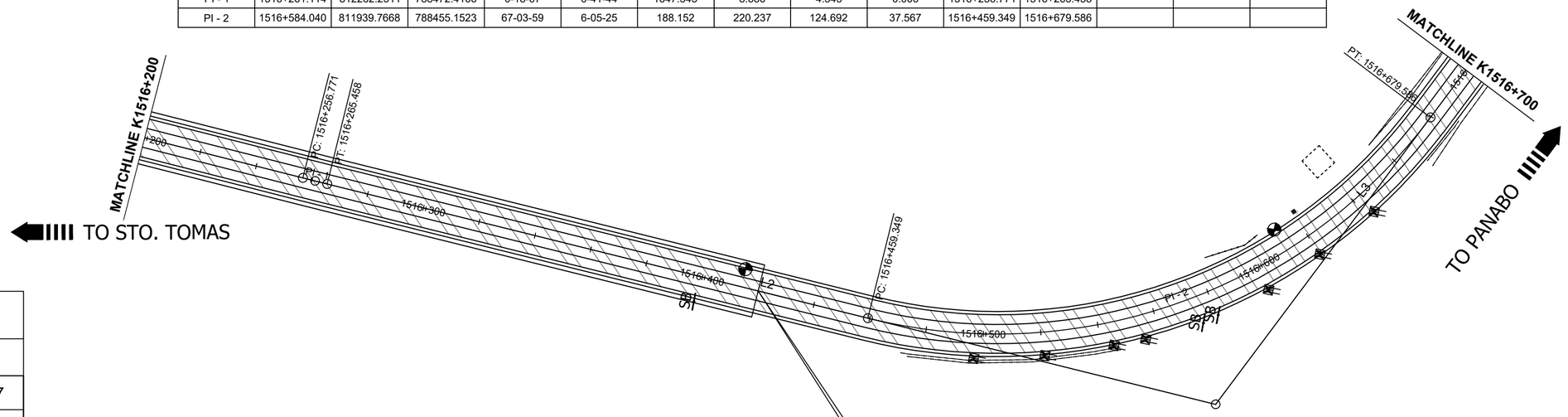
LEGEND:

- BENCH MARK
- PROPOSED ASPHALT OVERLAY
- CONTOUR
- WARNING SIGN

ELEMENTS OF CURVE														
PI No.	PI STATION	NORTHING	EASTING	I	Dc	R	Lc	T	E	Pc	Pt	e	w	V(kph)
PI - 1	1516+261.114	812262.2311	788472.4106	0-18-07	0-41-44	1647.545	8.686	4.343	0.006	1516+256.771	1516+265.458			
PI - 2	1516+584.040	811939.7668	788455.1523	67-03-59	6-05-25	188.152	220.237	124.692	37.567	1516+459.349	1516+679.586			



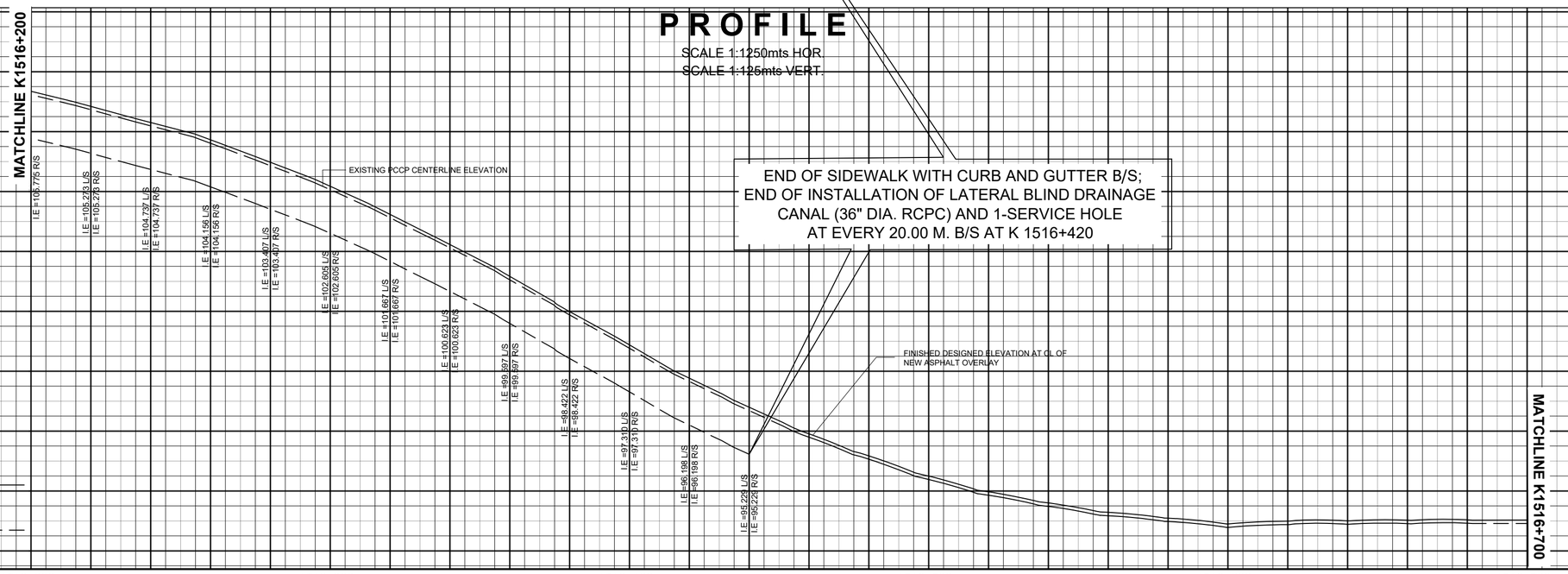
TRAVERSE LINE		
Line #	Length	Azimuth
L2	322.93	3-03-48.77
L3	181.33	295-59-50.20

PLAN

SCALE 1:1250mts

PROFILE

SCALE 1:1250mts HOR.
SCALE 1:125mts VERT.



LEGEND:

FINISHED DESIGNED ELEVATION AT CL OF NEW ASPHALT OVERLAY _____

EXISTING PCCP CENTERLINE ELEVATION — — —

STATION	1516+200					1516+300					1516+400					1516+500					1516+600					1516+700
FINISHED DESIGNED ELEVATION AT CL OF NEW ASPHALT OVERLAY	107.343	106.841	106.305	105.723	104.975	104.173	103.235	102.231	101.165	99.957	98.845	97.733	96.764	95.875	95.141	94.464	93.939	93.567	93.255	93.059	92.865	91.864	92.970	92.991	93.005	92.996
EXISTING PCCP CENTERLINE ELEVATION	107.230	106.728	106.192	105.610	104.862	104.060	103.122	102.118	101.052	99.877	98.765	97.653	96.684	95.795	95.061	94.384	93.859	93.487	93.175	92.979	92.785	92.878	92.890	92.911	92.925	92.916
I.E OF BLIND DRAINAGE B/S	105.775	105.273	104.737	104.156	103.407	102.605	101.667	100.623	99.597	98.422	97.310	96.198	95.229													
WIDENING																										
SUPER ELEVATION																										

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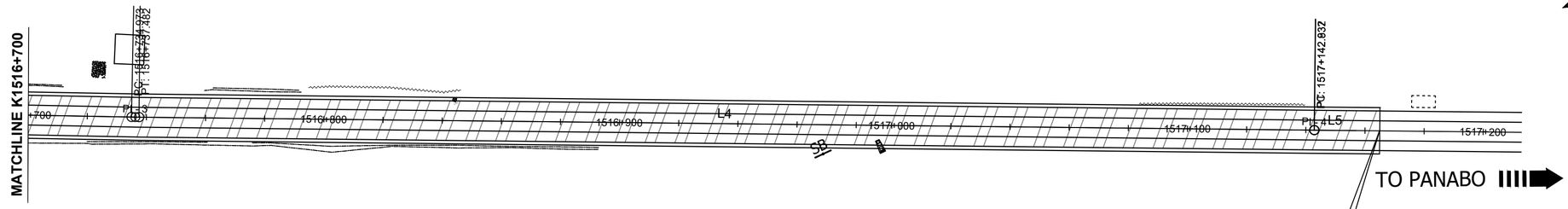
TAGUM-PANABO CIRCUM RD. - K1515+670 - K1517+165	PLAN AND PROFILE	**HERWIN EVAN J. HABABAG** ENGINEER II PREPARED: **WARREN S. PIÑEZ** ENGINEER II	**BENILDA S. PACQUIAO** ENGINEER III DATE:	**JEZABEL E. TULING, MPA** CHIEF, PLANNING AND DESIGN SECTION DATE:	**GARRY E. SERANO** OFFICER-IN-CHARGE OFFICE OF THE ASSISTANT DISTRICT ENGINEER DATE:	**ARTURO D. LONGYAPON** DISTRICT ENGINEER DATE:	N 2 3	18 / 31

LEGEND:

- BENCH MARK
- PROPOSED ASPHALT OVERLAY
- CONTOUR
- WARNING SIGN

ELEMENTS OF CURVE														
PI No.	PI STATION	NORTHING	EASTING	I	Dc	R	Lc	T	E	Pc	Pt	e	w	V(kph)
PI - 3	1516+736.228	811860.2830	788618.1379	0-28-45	3-49-11	300.000	2.509	1.255	0.003	1516+734.973	1516+737.482			
PI - 4	1517+142.885	811688.5435	788977.9050	0-01-49	5-43-46	200.000	0.106	0.053	0.000	1517+142.832	1517+142.937			



TRAVERSE LINE		
Line #	Length	Azimuth
L4	398.66	295-31-05.09
L5	14.12	295-29-16.02

END OF PROJECT
END OF 4 LANES ASPHALT OVERLAY
END OF PAVING OF SHOULDER B/S
AT K1517+165.00 AND
PROVIDE 5.00 MTS TRANSTION RAMP
(K1517+165.00 - K1517+170.00)
NORTHING: 830234.7833m; EASTING: 789559.2799m

PLAN

SCALE 1:1250mts

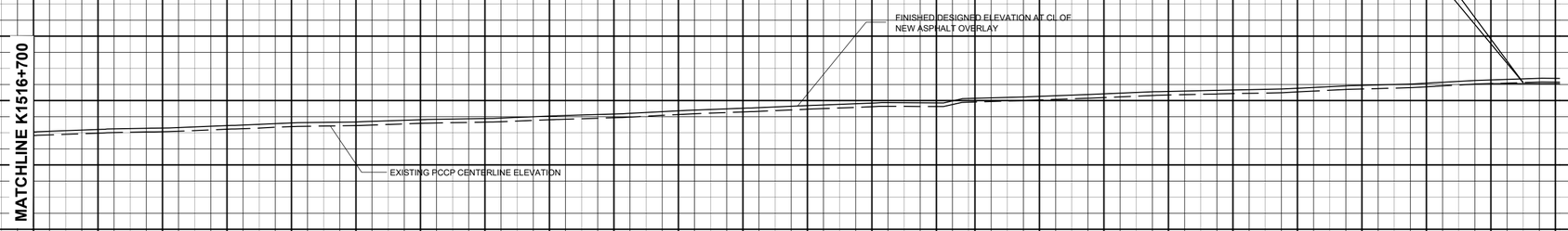
PROFILE

SCALE 1:1250mts HOR.
SCALE 1:125mts VERT.

LEGEND:

FINISHED DESIGNED ELEVATION AT CL OF NEW ASPHALT OVERLAY

EXISTING PCCP CENTERLINE ELEVATION



STATION	1516+700					1516+800					1516+900				1516+992/1517+000					1517+100					1516+165
FINISHED DESIGNED ELEVATION AT CL OF NEW ASPHALT OVERLAY	92.996	93.067	93.113	93.189	93.303	93.334	93.404	93.441	93.517	93.579	93.680	93.759	93.843	93.920	93.927	94.068	94.130	94.206	94.286	94.327	94.382	94.472	94.539	94.639	94.639
EXISTING PCCP CENTERLINE ELEVATION	92.916	92.987	93.033	93.109	93.190	93.221	93.291	93.328	93.404	93.466	93.567	93.646	93.730	93.807	93.814	93.955	94.017	94.094	94.171	94.214	94.269	94.359	94.426	94.526	94.526
WIDENING	W=0																								
SUPER ELEVATION	NORMAL CROWN = -1.50%														NORMAL CROWN = -1.50%										

REPUBLIC OF THE PHILIPPINES
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2ND DISTRICT ENGINEERING OFFICE
TAGUM CITY

PROJECT NAME AND LOCATION: **TAGUM-PANABO CIRCUM RD. - K1515+670 - K1517+165**

SHEET CONTENTS: PLAN AND PROFILE

DRAFTED: **HERWIN EVAN J. HABABAG**, ENGINEER II
PREPARED: **WARREN S. PIÑEZ**, ENGINEER II

REVIEWED: **BENILDA S. PACQUIAO**, ENGINEER III, DATE:

SUBMITTED: **JEZABEL E. TULING, MPA**, CHIEF, PLANNING AND DESIGN SECTION, DATE:

RECOMMENDED: **GARRY E. VERANO**, OFFICER-IN-CHARGE, OFFICE OF THE ASSISTANT DISTRICT ENGINEER, DATE:

APPROVED: **ARTURO R. LONGYAPON**, DISTRICT ENGINEER, DATE:

SET NO. N 3 3

SHEET NO. 19 / 31