



INTERNATIONAL CIVIL AVIATION ORGANIZATION  
**THE SECOND MEETING OF  
APAC WATER AERODROMES SMALL WORKING GROUP**  
Colombo – Sri Lanka, 29 February – 2 March 2016



Directorate General of Civil Aviation

WASWG/2—WP10

# **INTRODUCING GUIDANCE MATERIAL ON WATER AERODROME'S INDONESIA**

All the guidance material on this paper is a standard of technical and operational as stated in Indonesian MOS CASR 139 Vol. III – Water Aerodrome and Indonesian MOS CASR 139 Vol. IV – Airport Rescue and Fire Fighting Service.





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## A. Technical Standards - Waterside Facilities .. 1

**Water Operating Area.** The water operating area depends on the biggest seaplane operation, obstruction surrounding area (fix or mobile), water currents and wave action. Location will be chosen based on feasibility study of the technical, operational and environmental aspect. The dimension of water operating area; the depth of 1.8 m is preferred; a minimum depth of 1 m is adequate for single-engine operations. The length of the water operating area needs to be increased by 7 percent per 300 m of elevation above sea level to compensate for the change in density altitude.





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## A. Technical Standards - Waterside Facilities .. 2

**The Taxi Channel.** A taxi channel should have a minimum width of 45 m as direct access to the onshore facility and, when possible, should be oriented so the approach to the ramp or float will be into the prevailing wind or current. A minimum clearance of 15 m should be provided between the side of the channel and the nearest obstruction.

**Turning basins.** A minimum radius of turning basin 60 m and should be located adjacent to the shoreline facility and at each end of the water operating area. A minimum clearance of 15 m, should be provided between the side of the turning basin and the nearest obstruction.

**Anchorage areas.** Anchorage areas should provide maximum protection from high winds and rough water. Center to center anchor spacing, for small twin-float aircraft mooring, should not be less than twice the length of the longest anchor line plus 125 feet (38 m).



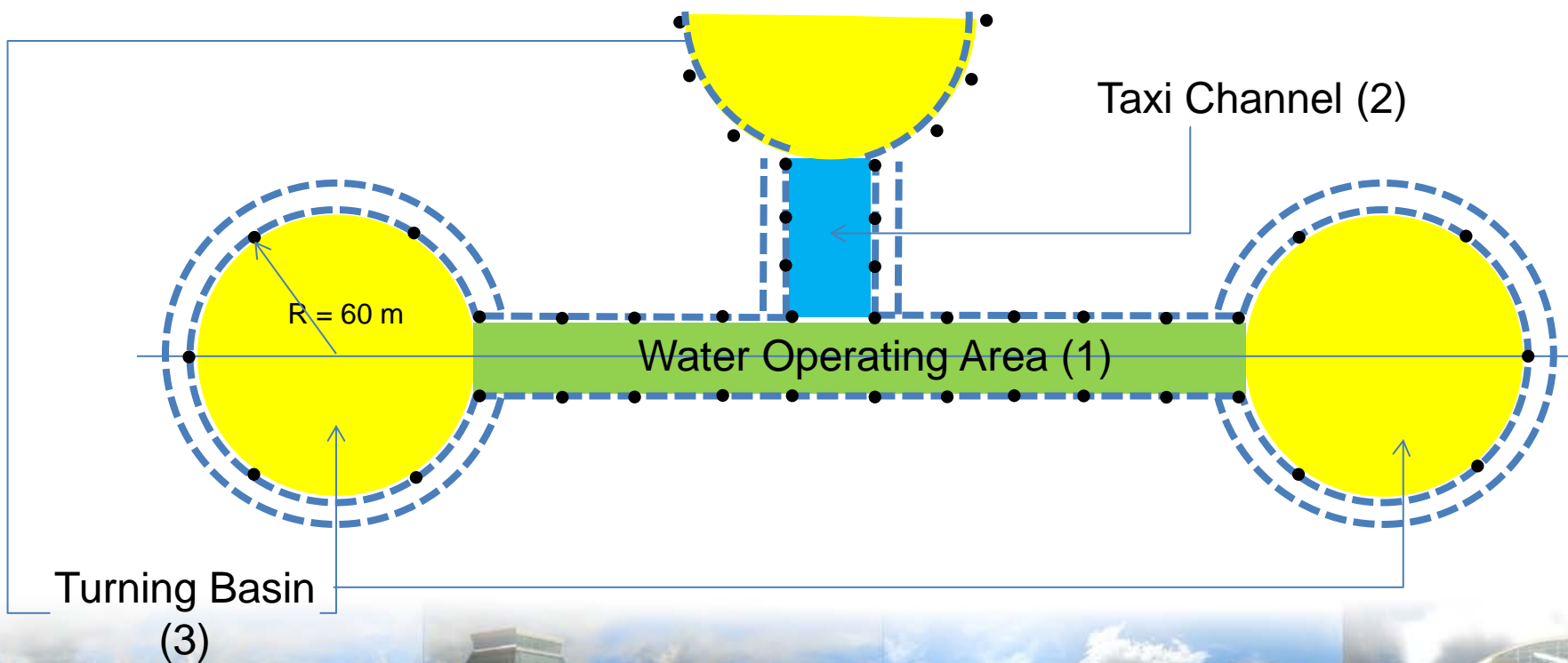


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## A. Technical Standards - Waterside Facilities .. 3





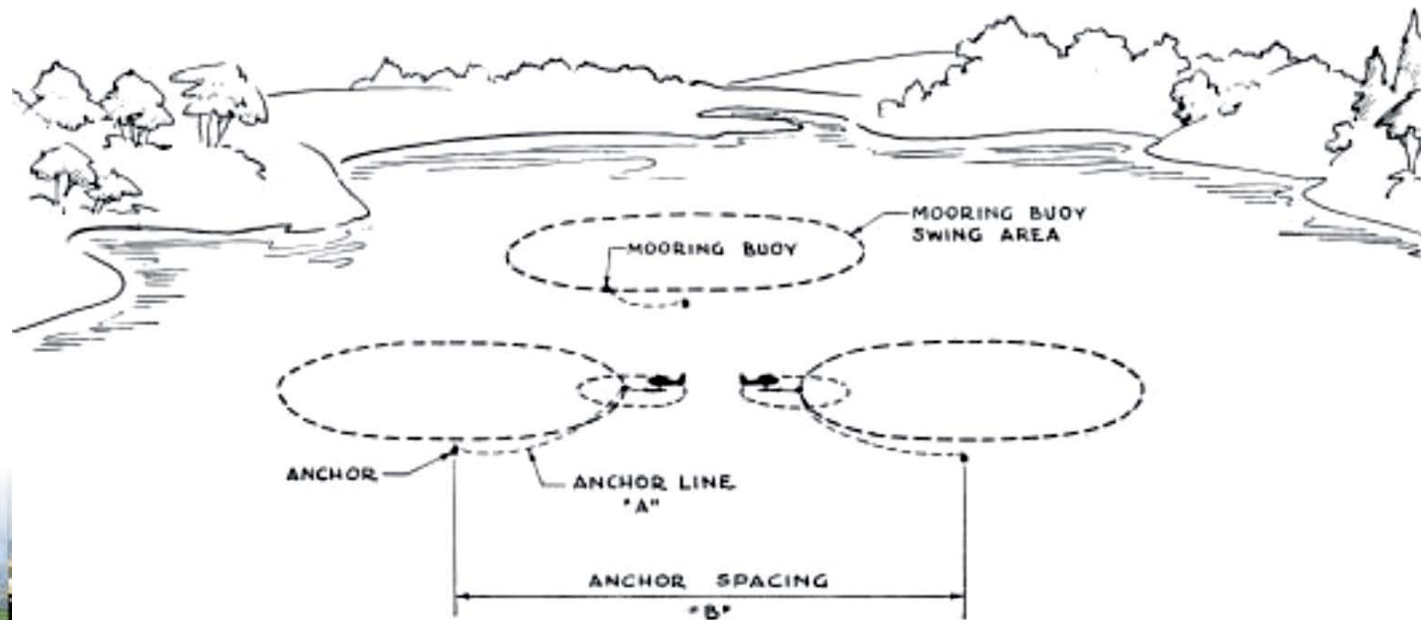
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## A. Technical Standards - Waterside Facilities .. 4

**Anchorage areas.** Anchorage areas should provide maximum protection from high winds and rough water. Center to center anchor spacing, for small twin-float aircraft mooring, should not be less than twice the length of the longest anchor line plus 125 feet (38 m).





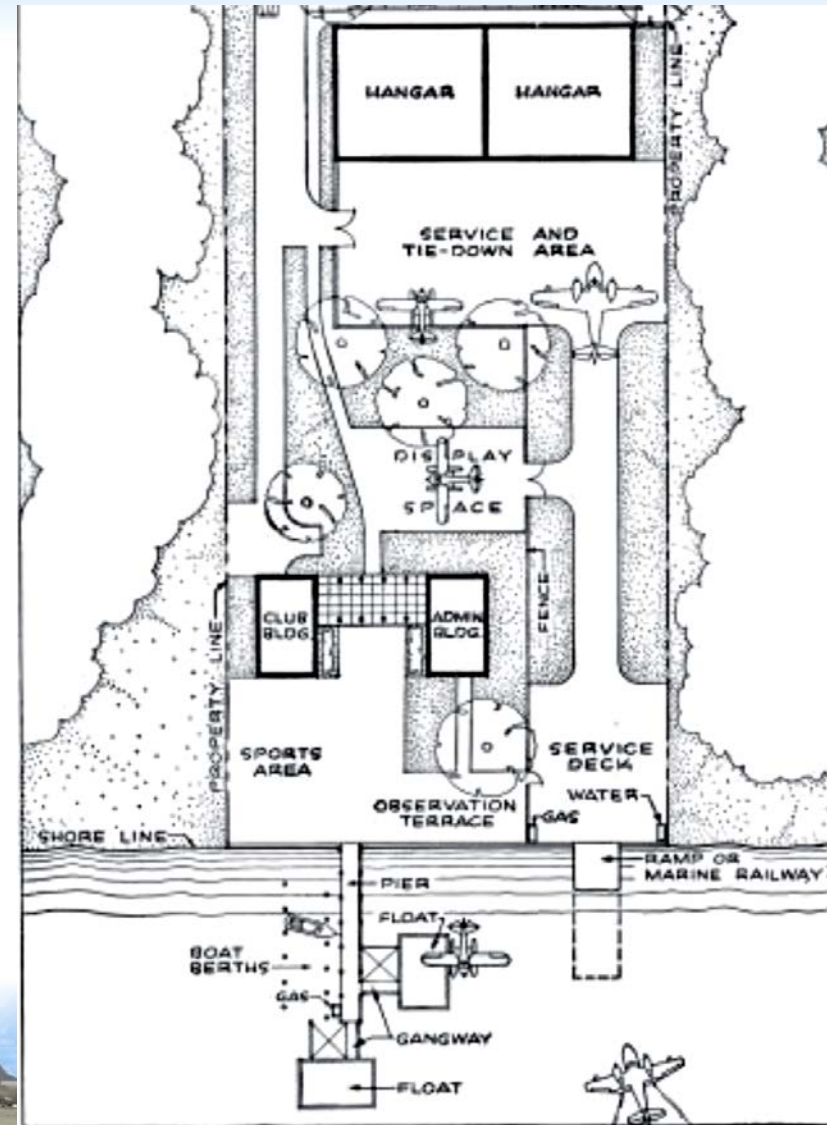
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## B. Technical Standard – Shoreline Facilities .. 1

Shoreline facilities. The functions are to enable servicing, loading, unloading and mooring without removing the aircraft from the water, and to provide haul-out facilities for removing seaplanes from water for maintenance.





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## B. Technical Standard - Shoreline Facilities .. 2

**Slipways.** A slipway should be where the water level change is not greater than 0.6 m and the minimum low water depth is not less than 0.5 m. The inside dimension of the slipway should be 0.6 to 1 m wider than the floats and 1 to 1.2 m longer than the rudder down float length. A gate should be provided to dissipate wave action.

**Ramps.** A minimum of 30 m of unobstructed water should be available directly offshore from the ramp, in the direction from which approaches are normally made. A ramp width of 9 to 12 m will accommodate aircraft in most wind, current, and tidal conditions.





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## B. Technical Standard - Shoreline Facilities .. 3

**Fixed pier.** A minimum of 30 m of unobstructed water or a turning basin should be available in the direction from which approaches are normally made to the floating pier. The minimum clearance between the centerline of a taxi route and the near faces of piers, floats, ramps, or marine railway is 18 m.

**Floating pier.** Floating piers offer great flexibility. A small float, 3 by 4.5 m, designed to support loads up to 1134 kg, will handle a single plane. Larger floats intended for mooring two or more aircraft should be designed to support gross loads up to 2268 kg.







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## B. Technical Standard - Shoreline Facilities .. 4

**Anchor.** Anchors vary in weight and shape, depending on intended use and bottom conditions. Permanent marker or lighting buoy anchors should not weigh less than 100 kg when submerged.

**Mooring buoy.** Mooring aircraft to buoys is a common method of parking seaplanes on the water. A mooring buoy must support the weight of the anchor line or wire rope.





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## B. Technical Standard - Shoreline Facilities .. 5

**Lighting.** Seaplane facility identification and water operating area lighting should be provided for night operations., The lightings are:

- 1. Beacon.** A lighted seaplane base can be identified by a beacon alternating white and yellow flashes at the rate of 12 to 30 flashes per minute.
- 2. Floodlights.** Floodlights or spotlights may be installed on the shore to illuminate aprons, floats, ramps, and piers.

**Weather aid facilities**, Aid facilities for weather, wind direction and speed observation.





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## B. Technical Standard - Shoreline Facilities .. 6

**Windsock.** Windsock should clearly visible from 200 feet, orange or orange-white and with the following sizes:

	Diameter of Big Circle	Length	Diameter of Small Circle
Medium Size	60 cm	2.40 cm	30 cm
Small Size	30 cm	1.20 cm	15 cm





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## C. Operational Standard .. 1

**Apron**, apron service and apron capacity and the size of tiedown point should be based on 5-year forecast. Apron should adequately accommodate based on a sea plane requiring onshore tiedown plus estimated busy period to conduct tiedowns.

**Water aerodrome marking** is in the form of an anchorage symbol, the marking standard is used as the marking of the waterbase. The marking is painted on a yard that is easily visible from the air. The marking is in yellow colour and at least 3 metres in size.





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## C. Operational Standard .. 2

**Hangar**, the location should be separated from the administration building and it should have a special lane in order to prevent conflicts with other seaplanes doing manoeuvres. Hangar as a place of storage and repair/maintenance shall also be used as an access for delivery of materials by service personnel without disruption. The hangar's required size and facilities depend on the number and types of sea planes in operation. The required additional area/size should be prepared for taxiing, turning and temporary parking of aircraft.

Waterbase shall have authoritative **personnel** on the sector of aviation safety, at least personnel having authority on the sector of aviation communication and seaplane landing service personnel.





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## D. Water Aerodrome Rescue and Fighting Service .. 1

Water aerodrome should provide minimum 2 **personnel of RFFFS** appropriate with RFFFS category requirements and the personnel have license od RFFFS with rating minimum is basic.

### **Category RFFS** for water aerodrome :

1. Water aerodrome shall be provide RFFF facilities appropriate with RFFS category requirements.
2. RFFFS category based on the overall length of the large aircraft operated regularly in the water aerodrome.





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## D. Water Aerodrome Rescue and Fighting Service .. 2

### Category RFFS for water aerodrome :

3. Category PKP-PK for water base consists of the following categories:

Water aerodrome RFFS category	Overall length of aircraft (meter)	Maximum width of fuselage (meter)
1	$< 9$	2
2	$9 \leq x < 12$	2
3	$12 \leq x < 18$	3
4	$18 \leq x < 24$	4





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## D. Water Aerodrome Rescue and Fighting Service .. 3

Minimum **requirement of fire extinguishing material** should be provided in the RFFS vehicle in water aerodrome is as the following table:

Water aerodrome RFFS category	Mixed Performance Foam Quality B		Supplementary extinguisher (choose one)	
	The water needs to produce foam (liter)	The average emission foam (Liter / min)	Dry Chemical Powder (kg)	CO <sub>2</sub> (kg)
1	230	230	45	90
2	670	550	90	180
3	1200	900	135	270
4	2400	1800	135	270







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## D. Water Aerodrome Rescue and Fighting Service .. 4

Water aerodrome to be equipped with **rescue equipment** were promulgated according to applicable regulations, The type and amount of rescue equipment are as follows :

Type of equipment	Water aerodrome RFFS category			
	1	2	3	4
Axe, rescue, large, non-wedges type with serrated edge and 36-inch (91.4 cm) fiberglass handle; to include scabbard and pick head cover	1	1	2	2
Blanket, fire resistant with storage pouch	1	1	2	2
Cutter, bolt, 24 inch (61 cm)	1	1	1	1
Cutter, cable, aircraft	1	1	1	1
Prybar, 60 inch= 152.24 cm	1	1	1	1



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## D. Water Aerodrome Rescue and Fighting Service .. 5

Type of equipment	Water aerodrome RFFS category			
	1	2	3	4
Hammer, sledge, 8 pound (3.6 kg)	1	1	1	1
Hook, assault grapnel, 3 hooks, 2 pound (0.9 kg)	1	1	1	1
Medical kit, first aid/first responder trauma kit, 76 component minimum nylon tote bag	1	1	1	1
Pike pole, 8 foot (3.6 m) with fiberglass handle	1	1	1	1
Manual type without auxiliary power source	1	1	1	1
Rescue kit, pneumatic air hammer standard duty type, complete with spare air cylinder	1	1	1	1
Saw, powered rescue, 14 inch (35.6 cm), complete with two (2) spare blades)	1	1	1	1

\* one for each seating position on vehicle





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## D. Water Aerodrome Rescue and Fighting Service .. 6

Skin penetrator (piercing applicator), for water or foam application, manual type	1	1	1	1
Skin penetrator, for water, foam, or dry chemical application, pneumatic type, including carrying case, adaptor, and compressed air cylinder)	1	1	1	1
Wrench, adjustable, 8 inch (20.3 cm)	1	1	1	1
Axe, rescue, small, non-wedge type with serrated edge, sheath and insulated handle)	1	2	3	3
Chisel, cold, 1 inch (2.5 cm)	1	1	1	1
Hacksaw, heavy duty, 12 inch (30.5 cm) with pistol grip and six (6) assorted blades)	1	1	1	1
Hammer, 1-1/4 pound (0.6 kg)	1	1	1	1
Hammer, 4 pound (1.8 kg)	1	1	1	1





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## B. Water Aerodrome Rescue and Fighting Service .. 7

Harness cutting tool	1	1	3	3
Pliers, side cutting, 7 inch (17.8 cm)	1	1	1	1
Plug, fuel line (hardwood)	3	3	3	3
Plug, fuel line (neoprene)	3	3	3	3
Rope line, nylon, 100 foot (30 m), 5/8 inch (16 mm))	1	1	1	1
Screwdriver set three (3) phillips and three (3) straight blade)	1	1	1	1
Shears, sheet metal, straight cut	1	1	1	1
Wrecking bar (crowbar), 36 inch (91.4 cm))	1	1	1	1
Wrench, vice grip, 10 inch (24.5 cm)	1	1	1	1






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**E. Water Aerodrome Register**



**DEPARTEMEN PERHUBUNGAN  
 DIREKTORAT JENDERAL PERHUBUNGAN UDARA  
 MINISTRY OF TRANSPORTATION  
 DIRECTORATE GENERAL OF CIVIL AVIATION**

**REGISTER BANDAR UDARA  
 AIRPORT REGISTER**  
 No. : 004/RBU-DBU/2009

<b>NAMA BANDAR UDARA</b>	:	<b>NEWMONT AMPHIBIOUS AIRCRAFT FACILITY</b>
<b>AIRPORT NAME</b>	:	
<b>LOKASI</b>	:	<b>BENETE, PROPINSI NUSA TENGGARA BARAT</b>
<b>LOCATION</b>	:	
<b>STATUS</b>	:	<b>PRIVATE</b>
<b>STATUS</b>	:	
<b>KOORDINAT ARP</b>	:	<b>08° 53' 70" N ; 116° 44' 83" E</b>
<b>ARP COORDINATE</b>	:	
<b>PENYELENGGARA</b>	:	<b>PT. NEWMONT NUSA TENGGARA</b>
<b>OPERATOR</b>	:	


Register Bandar Udara ini dikeluarkan oleh Direktur Jenderal Perhubungan Udara menurut peraturan penerbangan Indonesia dibawah otoritas Undang-Undang Penerbangan Nomor: 1 Tahun 2009 dan Peraturan Menteri Perhubungan Nomor: KM 24 Tahun 2009 tentang Peraturan Keselamatan Penerbangan Sipil (PKPS) Bagian 139 Bandar Udara.  
*This Register is issued by the Director General of Civil Aviation pursuant to the Indonesian aviation regulation under authority of The Aviation Law Number 1 Year 2009 and Minister of Transportation Decree Number KM 24 Year 2009 about Civil Aviation Safety Regulation (CASR) Part 139 Aerodrome.*

Pemegang Register Bandar Udara ini wajib memenuhi semua peraturan dan ketentuan keselamatan penerbangan.  
*This Airport Register Holder is mandatory to comply with regulation and standard of aviation safety.*

Direktur Jenderal Perhubungan Udara berwenangan mencabut atau membatalkan Register Bandar Udara ini setiap saat bilamana Operator Bandar Udara gagal memenuhi ketentuan dan Peraturan atau untuk alasan - alasan yang lain seperti yang diperkenankan.  
*The Director General may suspend or cancel this Register at any time where the airport operator fails to comply with the provisions set forth in the Law, the Regulations or for other grounds as set out in the Law.*

Register Bandar Udara ini tidak dapat dipindahtangankan dan berlaku sampai tanggal 1 Juni 2012 kecuali ada penangguhan atau pembatalan.  
*This Registration is not transferable and valid until June, 1<sup>st</sup> 2012 unless there is suspended or cancelled.*

Jakarta, 1 Juni 2009



**DIREKTOR JENDERAL PERHUBUNGAN UDARA**

**HERRY BAKTI**  
 Pembina Utama Muda (IV/c)  
 NIP. 19530419 198003 1 001





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**TERIMA KASIH**

**ありがとう**

**ขอขอบคุณคุณ**

**Thank You**

