SUBIC BAY METROPOLITAN AUTHORITY

BAGONG PILIPINAS

Materials and Services: Sampling and Analysis of Subic Bay Freeport Rivers and Marine Water Quality

Specifications and Conditions:

I. Sampling Locations for Rivers

Name of River	No. of Sampling Station Upstream (Class A)	No. of Sampling Station Downstream (Class B)	TOTAL
1. Binictican	1	2	3
2. Malawaan	1	2	3
3. Boton	1	2	3
4. Triboa	1	2	3
5. Ilanin	1	2	3
6. Binanga	1	2	3
Total Sampling Stations	**6**	**12**	**18**

II. GPS Reading of Sampling Locations for Rivers (See sampling station maps in ANNEX B)

SAMPLING SITE	Station 1	Station 2	Station 3
1. Binictican	**Approx. 1 km from Station 2 (UPSTREAM)**	**Binictican Bridge (DOWNSTREAM)**	**Course Mini Bridge (DOWNSTREAM)**
Northing	14° 47. 970'	14° 48.375'	14° 48.578'
Easting	120° 20.236'	120° 19.747'	120° 19.424'
2. Malawaan	**El Kabayo main entrance (DOWNSTREAM)**	**Subicwater Intake (DOWNSTREAM)**	**Upper Housing (UPSTREAM)**
Northing	14° 48.414'	14° 48.128'	14° 48.064'
Easting	120° 18.537'	120° 18.945'	120° 19.729'
3. Boton	**Camp Site (Boton River) (UPSTREAM)**	**Intake (approx. 500 m away from sta. 1) (DOWNSTREAM)**	**Approximately 1 Km from Sta. 2 (DOWNSTREAM)**
Northing	14° 47.031'	14° 47.193'	14° 48.2134'
Easting	120° 18.933'	120° 18.773'	120° 18.57'

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4. Triboa	**Triboa Pumping Sta. (UPSTREAM)**	**Bridge beside Subic Apparel (DOWNSTREAM)**	**100m away from Red Cross Compound (DOWNSTREAM)**
Northing	14°46.256'	14°46.581'	14°46.731'
Easting	120° 17.954'	120° 17.475'	120° 17.271'
5. Ilanin	**Culvert crossing Corregidor Hiway (UPSTREAM)**	**Culvert intersection at Nabasan Wharf Road (DOWNSTREAM)**	**Approx. 200 away from Station2 (DOWNSTREAM)**
Northing	14°45.677'	14°45.732'	14°45.893'
Easting	120° 17.226'	120° 16.509'	120° 16.049'
6. Binanga	**Approximately 1.3 km. from Binanga pumping station (UPSTREAM)**	**Binanga pumping Station (DOWNSTREAM)**	**Bridge intersection Minanga Highway (DOWNSTREAM)**
Northing	14°44.915'	14°44.8866'	14°44.64018'
Easting	120° 17.970'	120° 17.592'	120° 17.226'

III. Sampling Locations for Marine Waters (See sampling station maps in ANNEX B)

Location	No. of Sampling Station (Class SB)	Landmark	Northing	Easting
Waterfront	1	Near Bouya, Infront of Grande Ferry	14° 48.966'	120° 16.715'
Olongapo Bay	1	Infront of Gordon Beach	14° 49.440'	120° 15.898'
Boton Area	1	Near Aircraft Landing Signal Instrument	14°47.969'	120° 17.209'
NCT	1	100m from Loading Terminal SBITC	14°48.332'	120° 15.873'
Triboa Bay	1	200m from tip of Triboa Cape	14°46.657'	120° 16.018'
Ilanin Bay	1	Infront of Adventure Beach, Near El Kapitan Dive site	14°46.052'	120° 15.280'
Grande Island	1	Infront of Pier	14°46.478'	120° 13.782'
Total Sampling Points	7			

IV. Sampling Parameters

Winning provider should sample and test for river and marine water quality based on DAO 2016-08 or Water Quality Guidelines and Effluent Standards and DAO 2021-19 or "Updated Water Quality Guidelines (WQG) and General Effluent Standards (GES) for Selected Parameters".

River Water Quality Parameters
1. BOD
2. DO
3. TSS
4. Chloride
5. Chromium Hexavalent
6. Phosphate
7. Cadmium
8. Copper
9. Lead
10. Oil and Grease
11. Fecal Coliform
12. Nitrate
13. pH
14. Ammonia
15. Sulfate
16. Surfactants

Marine Water Quality Parameters
1. Temperature
2. DO
3. TSS
4. Oil and Grease
5. Surfactants
6. Chromium Hexavalent
7. Copper
8. Lead
9. Nitrate
10. Phosphate
11. Cadmium
12. Mercury
13. Arsenic
14. Fecal Coliform
15. pH

V. Proposed sampling schedule (dependent on tide condition)

Quarter	Target Date of Sampling
2nd Quarter	April 2025
4th Quarter	October 2025

VI. Project Implementation

Second (2^{nd}) Quarter and Fourth (4^{th}) Quarter of the year 2025

VII. Logistics

Winning service provider should provide his/her own land vehicle during the sampling and should inform the Ecology Center at least one (1) week before the scheduled sampling so that the latter can check boat availability from the SBMA Harbor Patrol, Law Enforcement Department (LED).

VIII. Water Quality Monitoring Manual

Winning service provider should follow the prescribed sampling procedures in the Water Quality Monitoring Manual issued by Department of Environment and Natural Resources.

IX. Sampling and Analysis Report

Winning service provider should submit the required Sampling and Analysis Report to Ecology Center at the soonest possible time after the conduct of the sampling but not to exceed one (1) month. The Report should follow the prescribed format as shown in Annex A.

Winning service provider should bill the SBMA ten (10) days after the submission and acceptance by the SBMA Ecology Center of the original/signed hard copy of the Sampling and Analysis Report. All Photo-documentations in each sampling station taken during actual sampling should have GPS readings and should be made an integral part of the Report.

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ANNEX A
WATER QUALITY SAMPLING AND ANALYSIS REPORT FORMAT

1st PAGE INCLUDES:

TITLE OF THE REPORT
DATES OF SAMPLING

NAME OF SERVICE PROVIDER
CONTACT DETAILS OF SERVICE PROVIDER
EXACT DATE OF REPORT SUBMISSION

SUCCEEDING PAGES INCLUDE:

I. SUMMARY OF THE CONDUCTED WATER QUALITY SAMPLING & ANALYSIS
II. AMBIENT CONDITION DURING THE DAY OF SAMPLING / MONITORING (Temperature, Weather Condition, Tidal Measure, Etc.)
III. DESCRIPTION OF THE SAMPLING METHODS
IV. WATER STANDARDS BENCHMARK
V. OBSERVATIONS DURING THE SAMPLING PROCEDURES (Time of day, physical condition of site, etc.)
VI. WATER QUALITY ANALYSIS RESULTS (tabular form for each sampling site and parameters)
VII. PICTURES OF THE ACTUAL SAMPLING PROCEDURES (with geotagged locations/ GPS)
VIII. CONCLUSION/S
IX. RECOMMENDATION/S
X. SIGNATORIES ON THE REPORT

ANNEX B
MAPS OF WATER QUALITY SAMPLING STATIONS

Figure 1. Map of Binictican River Water Quality Sampling Sites (Stations 1, 2, and 3).

Figure 2. Map of Malawaan River Water Quality Sampling Sites (Stations 1, 2, and 3).

Figure 3. Map of Boton River Water Quality Sampling Sites (Stations 1, 2, and 3).

Figure 4. Map of Triboa River Water Quality Sampling Sites (Stations 1, 2, and 3).

Figure 5. Map of Ilanin River Water Quality Sampling Sites (Stations 1, 2, and 3).

Figure 6. Map of Binanga River Water Quality Sampling Sites (Stations 1, 2, and 3).

Figure 7. Waterfront Marine water quality sampling station.

Figure 8. Olongapo Bay Marine water quality sampling station.

Figure 9. Boton Area Marine water quality sampling station.

Figure 10. NCT Area Marine water quality sampling station.

Figure 11. Triboa Bay Marine water quality sampling station.

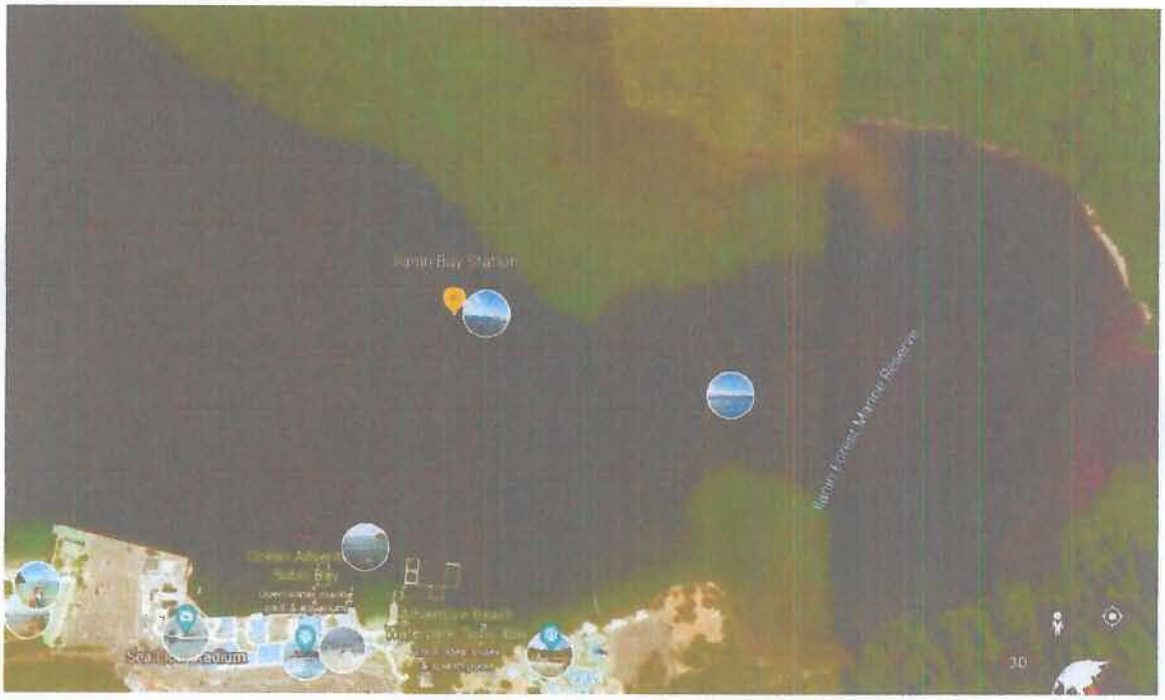

Figure 12. Ilanin Bay Marine water quality sampling station.

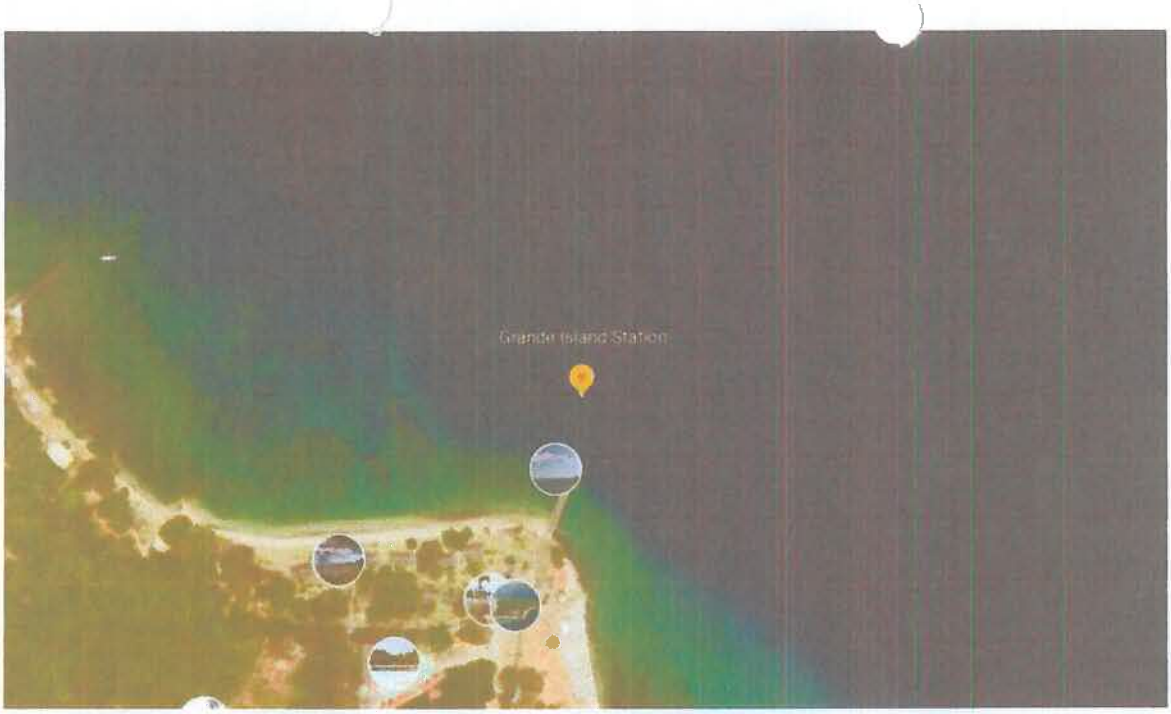

Figure 13. Grande Island Marine water quality sampling station.