Republic of the Philippines
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
OFFICE OF THE SECRETARY
Manila

27 MAY 2016

DEPARTMENT ORDER
No. 102
Series of 2016

SUBJECT: REVISED CRITERIA FOR RATING OF QUALITY ASSURANCE IN PROJECT IMPLEMENTATION

In order to identify the weak responsibility areas in project implementation and undertake necessary steps to strengthen the quality assurance program of the Department, the Regional/District Engineering Offices and Project Management Offices shall be rated as regards the materials quality assurance and construction procedures in the implementation of public works and highways projects. This rating shall also serve as one of the tools to professionalize the system of promotion and assignment of its personnel and granting of incentives.

Henceforth, the following criteria for rating quality assurance in project implementation are hereby prescribed, for guidance and compliance:

1. The Bureau of Quality and Safety (BQS) shall conduct annually the appraisal of quality assurance performance of all Regional/District and Project Management Offices.

2. The findings of the Quality Assurance Units in the assessed projects within a particular appraisal period shall be included in the rating.

3. The criteria for appraisal shall be the following:

Responsibility Area	Weight
a. Effectiveness of Quality Assurance Implementation	**70 %**
a.1 Timeliness of testing materials relative to its use in the project	10%
a.2 Ability to implement quality assurance policies	10%
a.3 Quality of completed works	50%
b. Project Supervision	**10%**
b.1 Personnel Adequacy	5.0%
b.2 Personnel Competence	5.0%
c. Laboratory Management	**20%**
• For Regional and District Offices	
c.1 Star Rating	20%
• For Unified Project Management Office	
c.1 Adequacy of Laboratory Equipment	10.0%
c.2 Reliability of Testing Equipment	10.0%
TOTAL	**100%**

BOS-349

4. Star Rating system shall be used as criterion for testing laboratories of the Regional and District Offices while the criterion for offices under Unified Project Management Office (UPMO) shall be based on checking as to the compliance of the laboratory facilities and testing equipment provided in the project as stipulated in the requirements of the contract and the Department.

5. The Overall Accumulated Points (OAP) of each Region shall be the average of the total points earned by the Regional Office and the District Offices.

6. The Overall Accumulated Points (OAP) of each cluster of UPMO shall be the total points earned by their office divided by the total number of rated projects.

7. The performance level of the Regional/District Offices and UPMO clusters shall be rated as follows:

OVERALL ACCUMULATED POINTS	**PERFORMANCE RATING**
91 – 100	Outstanding
81 – 90	Very satisfactory
71 – 80	Satisfactory
61 – 70	Fair
Below 60	Unsatisfactory

8. Immediately after the end of each appraisal period, the BQS shall make a report to the Secretary thru the concerned Undersecretary and copy furnished the Regional/UPMO cluster being appraised.

9. The Quality Assurance Performance Rating of all offices shall be posted in the official website of the Department.

10. The Head of the Regional/District Offices and UPMO clusters which has an "Unsatisfactory" performance rating, shall be required to explain in writing why such poor performance has occurred.

11. The Quality Assurance Performance Rating shall be one of the factors that will be considered for future promotions/assignments of the heads of the implementing offices and granting of Performance Based Bonus (PBB) of the field offices.

The Quality Assurance Unit – Central Office (QAU-CO) must see to it that the quarterly assessment of on-going and completed projects implemented by the Regional/District and UPMO clusters shall be carried-out expeditiously, as scheduled.

This Order shall take effect immediately.

ROGELIO L. SINGSON
Secretary

5.4 MGM/RCA/RLS

GUIDELINES FOR RATING OF QUALITY ASSURANCE IN PROJECT IMPLEMENTATION

Introduction

The Department, thru the Bureau of Quality and Safety (BQS) institutionalized the rating of quality assurance in project implementation. The rating is an appraisal of the quality assurance performance of the Regional Offices, District Offices and Unified Project Management Offices (PMO) for each calendar year. It covers the assessment of materials quality assurance and construction procedures in the implementation of DPWH projects, including maintenance undertakings. It also takes into account the capability of the organizational unit to implement, resource-wise, the DPWH quality assurance program.

The rating criteria can be categorized into the following with their corresponding weights:

Responsibility Area		Weight
a. Effectiveness of Quality Assurance Implementation		**70%**
a.1 Timeliness of testing materials relative to its use in the project	10%	
a.2 Ability to implement quality assurance policies	10%	
a.3 Quality of completed works	50%	
b. Project Supervision		**10%**
b.1 Personnel Adequacy	5%	
b.2 Personnel Competence	5%	
c. Laboratory Management		**20%**
• For Regional and District Offices		
c.1 Star Rating	20%	
• For Unified Project Management Offices (UPMO)		
c.1 Adequacy of Laboratory Equipment	10%	
c.2 Credibility of Testing Equipment	10%	
TOTAL --		**100%**

It should be emphasized that these criteria are the minimum considerations and other inputs reflective of an office's performance which are obtained thru regular field inspections and follow-up visits and shall form part of the overall evaluation for a rating period.

After the appraisal visit, each Regional Office and PMO shall be rated in terms of its Overall Accumulated Points, which is the mean of the aggregation of the quality control performance of their projects and/or offices.

In the succeeding sections, each rating parameter (responsibility area) is discussed in detail to establish uniform appraisal benchmarks and thus preclude subjectivity in the rating process.

A. Effectiveness of Quality Assurance Implementation (70%)

a.1 Timeliness of testing materials relative to its actual use in the project (10%)

Timeliness of testing materials shall be rated based on the minimum number and kind of tests required on materials to be incorporated into the work. The work here means the item/s of work and/or portion of item/s of work completed at the time of rating.

The minimum number of tests required for the project is indicated in the approved Quality Control Program (QCP). However, tests indicated therein are only the minimum number of tests required, and serve only as a guide. If necessary, tests shall be conducted for as long as the project is not yet completed and there are materials not yet tested.

Adjustments in the minimum number of tests and number of tests credited shall be made in any of the following cases:

a. Tests conducted at non-accredited private testing laboratories;

b. Tests conducted at accredited private testing laboratories owned by companies involved in the supply of construction materials for the project being assessed; and

c. Requirements in the Approved Quality Control Program inconsistent with the DPWH minimum testing requirements (i.e., Inspection Report/Mill Certificate/etc instead of Quality test)

The following documents shall be evaluated and used as bases for rating this parameter:

1. Program of Work
2. Quality Control Program
3. Latest Statement of Work Accomplished
4. Latest Summary of Tests
5. Latest Status of Tests
6. Test Results/Inspection Reports/Mill Certificates
7. Project and Materials Logbook
8. Revised Quality Control Program and/or Change Order
9. Latest Accomplishment Report

For water supply projects, only the quality test for water is required and this can only be checked after project completion. However, a certification as to the quality of materials incorporated into the works should be issued by the concerned Project Engineer/Project Inspector and Materials Engineer for on-going and completed water supply projects. Thus,

when such project is on-going, it could be included in the averaging of points for this responsibility area.

After all the sampling and testing of materials have been done, there is still one factor that affects the reliability of the quality of the materials. This is the authenticity of test reports.

Some reports maybe tampered while others contain data which are statistically improbable to obtain. For example, in the mechanical analysis of aggregates, the grading obtained from various samples is almost identical and there are no losses. Another case will be in compaction test where the points in the graph lie along the curve exactly which is occasionally possible but not regularly.

Experience and good theoretical understanding of the testing procedures should be used to judge whether data are fabricated or not. When there is no doubt as to the authenticity of test reports, the computation of a.1 as described above follows. When strong evidences point to fabrication of test results, the project shall automatically be given zero in this criterion.

The following example illustrates the procedure for rating this responsibility area:

Project	:	City Diversion Road
Implementing Office	:	PJHL
Status	:	On-going

Tabulation of completed items of work, minimum test requirements, and tests performed/credited:

The rater evaluates the computation of the minimum number of tests required and, if there are tests not included/missed out, he/she must correct the total requirement accordingly. Likewise, the rater must inform the concerned Materials Engineer of the corrections for proper adjustment of the Quality Control Program.

Item No.	Description	Quantity	Kind of Test	Min. No. of Tests Required	No. of Tests	
					Done	Credited
100	Clearing and Grubbing	1.72 ha	-	-	-	-
200	Aggregate Subbase Course	2168 cu. m.	Grading	8	10	8
			Plasticity	8	10	8
			Compaction	2	2	2
			Field Density	29	30	29
			**** Abrasion***	***2***	***0***	***0***
			**** CBR***	***1***	***0***	***0***

201	Aggregate Base Course	1840 cu.m.	Grading	7	7	7
			Plasticity	7	7	7
			Compaction	2	2	2
			Field Density	25	25	25
			Quality	2	-	
			Total	**90**	**93**	**88**
			Corrected Total	**93**	**93**	**88**

**** Required test which was not included/considered in the prepared QCP***

To obtain the rating for this responsibility area, divide the total credited tests by the minimum testing requirements and multiply the result by 10 to determine percentage of compliance to minimum testing requirements.

Applied to the above example, the rating is obtained as follows:

Percent compliance = (88/93) x 10 = *9.46*

a.2 Ability to implement quality assurance policies (10%)

To effect quality control compliance, the DPWH regularly formulates policies through memorandum circulars, department orders and other administrative issuances. These are in addition to other quality assurance policies stipulated in the standard specifications, general conditions, specific provisions and other related documents relative to the project. While all these policies are important, the Bureau of Quality and Safety (BQS) chose eight (8) of the most important ones that should be checked in the field considering time constraints and volume of projects to be appraised. However, other policies observed violated in the field and causing problems in the project implementation shall be considered in the rating.

The eight (8) policies are contained in the following issuances:

1. M.C. No. 38, series of 1981, Certificates of Quality Control Assurance
2. M.C. No. 33, series of 1981, Provision of Laboratory Facilities, Equipment and Personnel for Quality Control and D.O. No. 80, series of 1990, Inclusion of the Minimum Materials Testing Equipment in the Pre-qualification of Contractors
3. M.O. No. 80, series of 1978, Accomplishment of Quality Control Logbook
4. Accomplishment of Project Logbook
5. Availability of the following project documents in the project site or field/District/Regional/Project Management Office:
    a. Approved Plans and Specifications
    b. Program of Work with Detailed Estimates
    c. Contract Documents
    d. Change Order and/or Variation Order, if applicable

e. Latest Statement of Work Accomplished
f. Monthly Accomplishment Report
g. Design/Trial/Job Mixes, if applicable

6. D.O. No. 29, series of 1994 and D.O. No. 203, Series of 2003 – Utilizing First the Services of the Bureau of Research and Standards, Regional and District Laboratories of the DPWH in Testing of Samples of Construction Materials.
7. D.O. No. 253, series of 2003, Accreditation of Batching Plants Asphalt and Portland Cement Concrete.
8. D.O. No. 55, series of 2012, Amendment to D.O. No. 42, series of 2006, relative to the limits of assignment of accredited Materials Engineers of the Contractors and Consultants.

Table 1 presents the assignment of equivalent points for rating compliance to each of the aforementioned policies.

Table 1
Criteria for Rating Compliance to Quality Control Policies

Quality Control Policies	**Equivalent Points**		
	A	**B**	**C**
M.C. No. 38, Certificates of Quality Control Assurance	1	1	1
M.C No. 33, Provision of Laboratory Facilities, Equipment and Personnel for Quality Control and D.O. No. 80, Inclusion of the minimum materials testing equipment in the pre-qualification of contractors	1	1	2
M.C. No. 80, Accomplishment of Quality Control Logbook	2	2	2
Accomplishment of Project Logbook	2	2	2
Availability of Project Documents in the Project Site or Field/District/ Regional/Project Management Office	1	2	2
D.O. No. 203, Utilizing First the Services of BRS, Regional and District Laboratories	1	1	1
D.O.No.253, Accreditation of Asphalt and Portland Cement Concrete Batching Plant	1	-	-
D.O. No. 55, series of 2012, Amendments to D.O. No. 42, series of 2006, relative to the limits of assignment of accredited Materials Engineers of the Contractor's and Consultant's	1	1	-
TOTAL POINTS	**10**	**10**	**10**

A - Projects that require accredited Batching Plant and an accredited Materials Engineer

B - Projects that do not require accredited Batching Plant but requires an accredited Materials Engineer

C - Projects that do not require an accredited Batching Plant and Materials Engineer

For each policy compliance, the full equivalent points assigned in the above table shall be given. In case of partial or non-compliance, a score of (0) shall be given. The equivalent points given to each policy shall be added to obtain the rating for this responsibility.

Compliance with D.O. No. 55, series of 2012 shall only be checked when a project requires the assignment of an accredited Materials Engineer.

a.3 Quality of the completed work (50%)

The most indicative aspect of quality control in compliance in the field is the quality of the completed work. The quality of the completed work reflects not only the quality of materials used but likewise the workmanship applied.

It is possible that although the minimum number of tests is complied, still the work exhibits defects or failures. These failures can be determined through ocular observations in the field. All efforts must be done to check even the underlying structures, e.g., subbase and base for road construction works.

Whenever practical, actual tests should be conducted by the inspection team, especially when there are doubts on the quality of the work.

The rating for this criterion should be on a per item of work basis. An item of work done completely in accordance with approved plans and specifications gets **50%.** An item of work found to have defects shall be rated commensurately with the gravity of defects as shown below:

With less serious defects	- 40%
With serious defects	- 20%
With very serious defects	- 0%

Nature of defects are classified as less serious, serious and very serious. **Less serious defects** are those mostly associated to aesthetics and/or are very minor to affect structural properties of the work or are related to project documentation. **Serious defects** are those that need immediate corrective measures but need not be replaced. **Very serious defects** are those defects wherein repair cannot be instituted anymore and the defective part needs to be replaced. If several defects are noted for an item of work, the worst defect/deficiency should be considered for the rating. Items of work which are no longer visible and can no longer be verified should not be rated.

The above classification of defects shall be adjusted when the defects are either minimal or prevalent in frequency and/or magnitude, except on critical structures and/or portion/section of critical structures.

1. Serious defects affecting more than 25% of the pay item involved/being rated shall be treated and rated as very serious defects.

2. Very serious defects affecting 10% or less of the pay item involved/being rated shall be considered and rated only as serious defects.

Likewise, deficiencies in measurements and volume of an item of work, depending on their deviation from acceptable values, shall be rated as follows:

1. Serious deficiencies of 10% or more of the required thickness, width, length and/or volume of an item of work shall be categorized as very serious defects.

2. Very serious deficiencies involving less than 10% of the required thickness, width, length and/or volume of an item of work shall be categorized as serious defects.

Annex "D", List of Common Defects/Deficiencies, should be used as reference in the classification of defects/deficiencies. However, the rater is not limited to the listings and should rate other defects observed based on the existing criteria.

The following example illustrates the manner for rating this criterion.

Item of Work	Defects/Deficiencies	CLASSIFICATION				Rating for Worst Defect
		No Defect	Less Serious	Serious	Very Serious	
Item 200 (463 L.M.)	1. Oversized aggregates were noted on about 30 l.m. of the shoulders 2. Poor compaction and improper shaping of shoulders (more than 50% of the entire length) 3. Width of shoulder and thickness of base conform to specification	X		X	X	0
Item 311 (462 L.M.) 103 blocks	1. Peeling-off of asphalt sealant on weakened plane joints 2. Pavement length was measured to be 458 l.m. only instead of the required 462 l.m. 3. Major scaling was noted on five (5) blocks of the PCCP 4. Diameter of dowel bars used is only 12 mm instead of the required 16 mm			X X X	X	0
Item 500 (100 L.M.)	1. Bulging of collaring on five (5) inside joints of pipes 2. Insufficient mortar on three (3)			X X		20

	3. Diameter of pipes conforming to specifications	X				

Under Item 200, defect #1 is classified as very serious but was rated as a serious defect only since it involves less than 10% of the total shoulder length. Defect #2 is a serious defect but was rated as a very serious one inasmuch as it involves more than 25% of the total shoulder length.

Similarly, under Item 311, the classification for deficiency #2 and #4 was adjusted because of the minimal deviations from the required length and diameter, respectively. Deficiency #2 is a very serious deficiency but was treated as a serious deficiency since it involves less than 10% of the total pavement length. Deficiency #4 falls under serious deficiency, but was treated as very serious deficiency because the deviation is more than 10% of the required diameter. On the other hand, defect #3, which is a very serious defect, was rated only as serious since it involves less than 10% of the pavement area.

The rating for this example was obtained by averaging the worst ratings of every item of work. Thus,

$$\text{Rating for Responsibility Area A.3} = \frac{0+0+20}{3} = 6.67$$

However, an Item of Work found to have defects but with site instructions issued to the contractor for the correction of defects prior to QAU assessment shall be rated as follows:

a. Defects that occurred beyond the control of the Project Engineer, Project Inspector and Materials Engineer such as washed-out subbase and base courses due to floods and typhoon, use of slightly rusty rebars on project area exposed to sea water and other defects arising from "force majeure" will not be considered as defects in the rating if they were corrected prior or immediately after the QAU assessment.

b. Defects/Deficiencies, whether corrected or not, arising from failure of the PE, PI and ME to be present during a critical activity to do a milestone inspection properly to check the density of subbase and base, number and sizes of rebars and spacing of rebars for concrete structures, etc. prior to the issuance of concrete pouring permit due to valid reasons shall be rated commensurately with the gravity of defects as spelled out under these guidelines.

B. Project Supervision (10%)

Project supervision shall be rated in terms of personnel adequacy at various stages of the construction phase and personnel competence based on sanctions issued to the implementing office's field engineers.

b.1 Personnel Adequacy (5%)

In rating the adequacy of field engineers, the presence of assigned personnel to on-going-projects is verified. The project designation order regarding the assignment of these

personnel should be checked. If a project is on-going and there are critical activities (i.e., placing of concrete, placing of bituminous concrete, rolling/compaction of bituminous materials, etc.) the presence of field engineers (PE, PI and ME) shall be rated as follows:

All present	-	5.0
Any two	-	3.0
Only one	-	1.0

In case a project has no assigned Project Inspector, the rating shall be as follows:

Both PE and ME present	-	5.0
Any one present	-	3.0

However, if a project is on-going and there are no critical activities or has no activities at all wherein the presence of PE, PI and ME is not required, the rating should be as follows:

At least one present	-	5.0
None	-	0

The rating for this criterion shall be zero (0) if any one of the assigned engineers (PE, ME and PI) is not accredited, exceeds the limits of his/her assignment or has no Project Designation Order.

b.2 Personnel Competence (5%)

Competence shall be rated in terms of the number of sanctions issued to the field engineers of an implementing office in a current year:

Table 2

No sanctions issued	-	**5**
1 to 3 warning issued	-	**4**
4 to 6 warnings issued or one (1) suspension issued	-	**3**
7 to 9 warnings issued or two (2) suspensions issued	-	**2**
10 to 12 warnings issued or three (3) suspensions issued	-	**1**
More than 12 warnings issued or more than three (3) suspensions issued	-	**0**

C. Laboratory Management (20%)

- **For Regional and District Engineering Offices**

c.1 Star Rating (20%)

Other important factors in attaining the correct test results and thus, the right quality of materials, are laboratory facilities and equipment and the capability, competence and knowledge of the laboratory personnel who will conduct the various tests that will affect the test results. As such, The Star Rating shall be used under this criterion in rating the Implementing Offices as set forth in Department Order regarding the Star Rating of DPWH testing laboratories. The Star Rating System will classify testing laboratories in One- Star, Two Star, or Three Star based on Table 1 below:

Table 1

Implementing Office	STAR Rating		
	One- Star	Two-Star	Three - Star
Regional/District Office	10.0	15.0	20.0

The rating for this criterion shall be zero (0) if a Regional or District Materials Testing Laboratory failed to secure a STAR Rating.

- **For Unified Project Management Office (20%)**

c.1 Adequacy of Testing Equipment (10.0%)

For UPMO projects with laboratory facilities and testing equipment which are either provided or rented/based by the contractor, the rating for this criterion shall be based on checking as to the compliance of the laboratory facilities and testing equipment provided for the project as stipulated in the contract. The office obtains the full points for this criterion if all equipment have been provided and gets a zero (0) for partial compliance.

For UPMO projects without provision of Laboratory Facilities in the contract, the laboratory equipment of the contactor as required under D.O. No. 80 Series of 1990 regarding inclusion of the Minimum Materials Testing equipment in the Pre-qualification of Contractors will be the basis for this criterion. The applicable testing equipment should be present at the project site. The office obtains the full points if all equipment have been provided and gets zero (0) for partial compliance.

Inasmuch as all assigned Materials Engineers for contractors and consultants are already accredited, it is presumed that these personnel are qualified and complies with standard sampling and testing procedures in the conduct of the testing of construction materials.

c.2 Reliability of Testing Equipment (10.0%)

In addition to the requirement of having the required laboratory equipment and facilities, the office concerned is also given the responsibility to assure that the equipment and facilities provided by the contractors are well maintained and calibrated.

Table 2 presents the equivalent points for rating this responsibility area.

Table 2
Rating Reliability of Laboratory Equipment/Facilities

% of Equipment Maintained and Regularly Calibrated	Equipment Points
90 – 100	**10.0**
70 – 80	**8.5**
60 – 69	**7.0**
40 – 59	**5.5**
20 – 39	**4.0**
10 – 19	**2.5**
Less than 10	**0.00**

Computation of the Overall Accumulated Points

The total points earned by each rate office shall form part of the Overall Accumulated Points (OAP) for the Region. The OAP shall be as follows:

$$OAP = \frac{P1 + P2 + P3 + \ldots\ldots + Pn}{n}$$

where:

P = total points earned by a rated office
n = number of offices rated within the region

Details of the computation of the OAP shall be presented by using the forms shown in Annex E, Annex E-1 presents the individual ratings for each office rated while Annex E-2 shows the summary of the individual ratings, the Region's Overall Accumulated Points and adjectival performance rating and the signature of the rater.

Based on the summation of all the points gathered per criterion, the computed OAP will then correspond to the following adjectival performance.

Overall Accumulated Points	Performance Rating
91 – 100	Outstanding
81 – 90	Very Satisfactory
71 – 80	Satisfactory
61 – 70	Fair
Below 60	Unsatisfactory

Annex "D"

List of Common Defects/Deficiencies

Annex D
CLASSIFICATION OF COMMON DEFECTS/DEFICIENCIES
Roads and Bridges

MAJOR ITEMS OF WORK	LESS SERIOUS	SERIOUS	VERY SERIOUS
100 - CLEARING AND GRUBBING 101 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS 102 - EXCAVATION 103 - STRUCTURE EXCAVATION 104 - EMBANKMENT 105 - SUBGRADE PREPARATION		◦ Non-conformity with the required lines, grades and dimensions [Items 102-105] (STILL CORRECTIBLE)	◦ Non-removal/disposal and/or unsatisfactory disposal of removed structures, unsuitable materials, trees, vegetable, debris and other obstructions [Items 100-103] ◦ Non-conformity with the required lines, grades and dimensions [Items 102-105] (NO LONGER CORRECTIBLE) ◦ Use of unsuitable materials which should be disposed [Item 104] ◦ Non-removal of existing structure without justified reason/s [Item101] ◦ Non-excavation of materials/structures without justified reasons [Item 102] ◦ The required subgrade preparation was not undertaken. [Item 105]
106 - COMPACTION EQUIPMENT AND DENSITY CONTROL STRIPS 107 - OVERHAUL		◦ Hauling distance for excavated materials which is claimed/considered overhauled is still within the free haul distance (UNPAID)	◦ Non-construction of density control strips if specified in the contract [Item 106] ◦ Hauling distance for excavated materials which is claimed/considered overhauled is still within the free haul distance (PAID)

Annex D
CLASSIFICATION OF COMMON DEFECTS/DEFICIENCIES
Roads and Bridges

MAJOR ITEMS OF WORK	LESS SERIOUS	SERIOUS	VERY SERIOUS
200 - AGGREGATE SUBBASE COURSE 201 - AGGREGATE BASE COURSE 202 - CRUSHED AGGREGATE BASE COURSE 203 - LIME STABILIZED ROAD MIX BASE COURSE 204 - PORTLAND CEMENT STABILIZED ROAD MIX BASE COURSE 205 - ASPHALT STABILIZED ROAD MIX BASE COURSE 206 - PORTLAND CEMENT TREATED PLANT MIX BASE COURSE 300 - AGGREGATE SURFACE COURSE		◦ Non-conformance to the required lines, grades, thickness and typical cross-section * ◦ Installation of formworks prior to base preparation and compaction ◦ Use of inferior quality materials for subbase, base and shoulder materials ◦ Washed-out subbase and base courses * ◦ Deficient thickness of subbase and/or base materials * ◦ Shoulders were not provided (On-going)* ◦ No/insufficient compaction of subbase and/or base materials for unpaved roadway	◦ Non-conformance to the required lines, grades, thickness and typical cross-section * ◦ Non-provision of the required minimum construction equipment ◦ Use of unsuitable/inferior materials for subbase, base and shoulder materials ◦ Washed-out subbase and base courses * ◦ Non-incorporation of base and subbase ◦ Deficient thickness of subbase and/or base materials * ◦ Shoulders were not provided (Completed and Paid)* ◦ Base/subbase not extended to the full width of roadway ◦ Deviation from materials specifications, e.g. grading, plasticity, etc. requirements (minimal) ◦ Improper construction methods ◦ No/insufficient compaction of subbase and/or base materials for paved roadway ◦ Depression/settlement/upheaval of base and subbase*
301 - BITUMINOUS PRIME COAT 302 - BITUMINOUS TACK COAT 303 - BITUMINOUS SEAL COAT		◦ Non-conformance to the required rate and method of application ◦ Materials incorporated do not conform to materials specifications *	◦ Non-observance of the required drying time without justifiable reasons ◦ Materials incorporated do not conform to materials specifications *
304 - BITUMINOUS SURFACE TREATMENT 305 - BITUMINOUS PENETRATION MACADAM PAVEMENT 306 - BITUMINOUS ROAD MIX SURFACE COURSE 307 - BITUMINOUS PLANT MIX SURFACE COURSE-GENERAL 308 - BITUMINOUS PLANT MIX SURFACE COURSE, COLD LAID 309 - BITUMINOUS PLANT MIX (STOCKPILE MAINTENANCE MIXTURE) 310 - BITUMINOUS CONCRETE SURFACE COURSE		◦ Non-scarifying of existing asphalt pavement, if required in the contract ◦ Bleeding of asphalt pavement ◦ Non-conformance to the required thickness	◦ Non-conformance to the required lines, grades, thickness and typical cross-section ◦ Non-conformance to the job mix formula ◦ Non-conformance to bitumen content requirement ◦ Non-conformance to the penetration grade requirement ◦ Application of single bituminous surface treatment instead of the required Double Bituminous Surface Treatment ◦ Non-conformance to the temperature requirement ◦ Upheaval ◦ Non-conformance to the required density ◦ Cracks ◦ Ravelling

Annex D
CLASSIFICATION OF COMMON DEFECTS/DEFICIENCIES
Roads and Bridges

MAJOR ITEMS OF WORK	LESS SERIOUS	SERIOUS	VERY SERIOUS
311 - PORTLAND CEMENT CONCRETE PAVEMENT	◦ Minor scaling ◦ Temperature/Shrinkage cracks	◦ Moderate scaling ◦ Undersized dowel bars ◦ Non-utilization of templates prior to pouring ◦ Improper brooming ◦ Improper blocking ◦ Edge chipping ◦ Honeycomb ◦ Defective formworks ◦ Non-application of used oil/grease on form ◦ Improper/Inadequate vibration ◦ Transverse cracks	◦ Major scaling ◦ Non-conformance to the required lines, grades, thickness and typical cross-sections ◦ No/Improper curing ◦ No vibrator ◦ Poor quality concrete mix ◦ Longitudinal/Transverse through cracks ◦ Deficiency in length, width and thickness
400 - PILING		◦ No graduation marks on stockpiled piles	◦ No graduation marks on partially driven piles ◦ Improper driving of piles ◦ Non-conformance to plans and specification, e.g. undersized/improper installation of rebars, non-conformance to casting length, non-provision of pile shoe, poor quality concrete mix, no/improper curing casted RC piles, improper splicing, etc. ◦ Use of deformed steel piles ◦ Steel piles have corrosion ◦ Concrete piles used have stone pockets, honeycomb, bulging or other defects. ◦ Timber piles with loose knots, split, worm holes, decays, warp, ring separation
401 - RAILINGS Steel Railings Concrete Railings Timber Railings	◦ Damage to galvanized coating ◦ Damaged/No Painting ◦ Minor corrosion ◦ Minor cracks	◦ Non-conformance to material requirement ◦ Improper installation/alignment ◦ Inadequate bolts/nuts ◦ Major corrosion ◦ Major cracks ◦ Non-conformance to required dimensions, lines and grades as shown on the plans ◦ Not enough cover to reinforcements ◦ Non-conformance to the required finish ◦ Defective timber railings	◦ Non-conformance to plans and specifications

Annex D
CLASSIFICATION OF COMMON DEFECTS/DEFICIENCIES
Roads and Bridges

MAJOR ITEMS OF WORK	LESS SERIOUS	SERIOUS	VERY SERIOUS
402 - TIMBER STRUCTURES 403 - METAL STRUCTURES 404 - STEEL BRIDGES 405 - WELDED STRUCTURES		◦ Non-application of preservative such as creosote oil or creosote petroleum oil blend ◦ No/Inadequate painting ◦ No/Inadequate painting	◦ Non-conformance to the required dimensions, lines and grades ◦ Use of defective timber, i.e. decay of timber, signs of insect attack, splitting of timber, loose or damaged fixings, bends in timber members, etc. ◦ Non-conformance with the lines, grades and dimensions as shown on the plans ◦ Non-conformance to the materials specifications ◦ Damaged or corroded steel ◦ Deterioration of paint or galvanising ◦ Corrosion on the metal used ◦ Damaged and/or bends to metal parts ◦ Loose or missing fixings ◦ Cracking on the metal members ◦ Defective or unsound welds
405 - STRUCTURAL CONCRETE 406 - PRESTRESSED CONCRETE STRUCTURES 407 - CONCRETE STRUCTURES 500 - PIPE CULVERTS AND STORM DRAINS 501 - UNDERDRAINS	◦ Minor cracks not affecting the structural stability	◦ Honeycombs ◦ No/Improper curing ◦ Improper vibration ◦ Non-provision of concrete vibrator ◦ Major cracks not affecting the structural stability ◦ Poor finishes/plastering ◦ Defective forms/form supports ◦ Non-application of oil/grease on forms ◦ Use of rusty rebars ◦ Improper splicing/installation ◦ Bedding and backfill materials used do not conform to the required specifications. ◦ No/Improper compaction of bedding and backfill materials ◦ No/Improper/Inadequate collaring of RCPC joints ◦ Non-compliance to joint mortar mixing proportions	◦ Non-conformance to materials specification ◦ Use of dirty/deleterious water ◦ No concrete design mix ◦ Non-compliance to concrete design mix ◦ Cracks affecting the structural stability ◦ Non-conformance to design specifications/plans ◦ Misalignment of columns, beams, girders and other concrete structure parts ◦ Sagging beams ◦ Bulging columns ◦ Improper location of construction joints ◦ Non-conformance with the plans, type, size, shape and grade required ◦ Non-conformance to the required dimensions, elevation and alignment of the structure ◦ Non-incorporation of bedding materials, if required ◦ Non-conformance to materials requirement

Annex D
CLASSIFICATION OF COMMON DEFECTS/DEFICIENCIES
Roads and Bridges

MAJOR ITEMS OF WORK	LESS SERIOUS	SERIOUS	VERY SERIOUS
502 - MANHOLES, INLETS AND CATCH BASINS			◦ Non-conformance with plans and design specifications ◦ Non-conformance to materials specifications ◦ Damaged manhole, inlets and catch basins
503 - CLEANING AND RECONDITIONING EXISTING DRAINAGE STRUCTURES			◦ Non-compliance to scope of work
504 - RIPRAP AND GROUTED RIPRAP 505 - STONE MASONRY 506 - HAND LAID ROCK EMBANKMENT RUBBLE CONCRETE		◦ Non-conformance to plans and specifications (length) ◦ Non-conformance to materials specifications for weepholes ◦ Insufficient cement mortar ◦ No/Improper curing ◦ No/Insufficient stone fillers	◦ Non-conformance to plans and specifications (slope, thickness) ◦ Non-conformance to materials specifications ◦ Non-compliance to cement mortar mixing proportions ◦ No/Inadequate weepholes ◦ No/Inadequate foundation ◦ No grout ◦ No/Inadequate compaction/preparation of bedding ◦ Cracks ◦ Improper construction method

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CLASSIFICATION OF COMMON DEFECTS/DEFICIENCIES
Roads and Bridges

MAJOR ITEMS OF WORK	LESS SERIOUS	SERIOUS	VERY SERIOUS
507 - SHEET PILES Timber Sheet Piles		◦ Non-application of creosote on sawed surface/ cuts and abrasions ◦ Non use of metal collar and/or protective caps ◦ Splintering/Brooming of timber pile ends ◦ No graduation marks on stockpiled timber sheet piles	◦ Deficient dimension ◦ Use of unspecified timber ◦ Improper driving of timber sheet piles ◦ Timber sheet piles with loose knots, splits, worm holes, decays, warp, ring separation ◦ No/Inadequate treatment ◦ Required number of piles was not attained. ◦ No graduation marks on partially driven timber sheet piles
Steel Sheet Piles		◦ No graduation marks on stockpiled steel sheet piles	◦ Deficient dimension ◦ Improper driving of steel sheet piles ◦ Non-compliance to splicing requirements ◦ Use of deformed sheet piles ◦ Use of rusty steel sheet piles ◦ Pile not protected by specified paint ◦ Steel sheet piles have corrosion
Concrete Sheet Piles		◦ No graduation marks on stockpiled concrete sheet piles	◦ Non-conformance to plans and specifications, e.g. undersized/improper installation of rebars, non-conformance to casting length, non-provision of pile shoe, poor quality concrete mix, no/improper curing of casted sheet piles, improper casting of concrete sheet piles, improper splicing, etc. ◦ Concrete sheet piles used have stone pockets, honeycomb, bulging or other defects. ◦ No graduation marks on partially driven concrete sheet piles ◦ Improper driving of concrete sheet pile

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MAJOR ITEMS OF WORK	LESS SERIOUS	SERIOUS	VERY SERIOUS
508 - CONCRETE SLOPE PROTECTION	◦ Minor cracks not affecting the structural stability	◦ Honeycombs ◦ Major cracks not affecting the structural stability ◦ No/Improper curing ◦ Improper vibration ◦ Non-provision of concrete vibrator ◦ Poor finishes/plastering ◦ Defective formworks ◦ Non-oiling of forms ◦ Use of rusty rebars ◦ Improper splicing/installation	◦ Non-conformance to design specification/plans ◦ Non-conformance to material specifications ◦ Use of dirty/deleterious water ◦ No design mix ◦ Non-compliance to design mix ◦ Non-compliance to design mix ◦ Cracks affecting the structural stability ◦ Non-provision of the specified bed course ◦ Non-conformance to the required thickness of bed course ◦ No/Inadequate compaction of bed course
509 - GABIONS			◦ Non-conformance to materials requirements (rock and wire mesh) ◦ Non-conformance to designated locations, lines, grades, dimensions and arrangements as shown in the plan
600 - CURB AND GUTTER	◦ Non-provision of joint filler	◦ Non-conformity with the lines, grades, dimension, design and location as shown on the plans ◦ Inadequate compaction of bed course materials ◦ Premature placing of forms ◦ Cracks	◦ Non-conformity with the lines, grades, dimensions, design and location as shown on the plans ◦ Non-provision of the required bed course materials ◦ Non-compaction of bed course materials ◦ Unaligned curb and gutter ◦ Non-conformance of concrete mix to the requirements of Item 405, Structural Concrete
601 - SIDEWALK	◦ Non-provision of joint filler for concrete sidewalk	◦ Non-conformance with the lines, grades, dimensic design and location as shown on the plans ◦ Non-conformance to materials specifications as specified in Items 405, 306 and 310 ◦ Inadequate joint filler for concrete sidewalk ◦ Use of defective forms ◦ Premature placing of forms, that is placing of forms prior to preparation and complete compaction of underlying materials.	◦ Non-conformance with the lines, grades, dimensions, design and location as shown on the plans ◦ Non-conformance to materials specifications as specified in Items 405, 308 and 310 ◦ Inadequate/Non-provision of the required bed course materials ◦ Non-application of prime coating prior to laying of asphalt

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MAJOR ITEMS OF WORK	LESS SERIOUS	SERIOUS	VERY SERIOUS
602 - MONUMENTS, MARKERS AND GUIDE POSTS		◦ Non-provision of monuments, markers and guide posts ◦ No/Inadequate painting ◦ Non-provision of the required warning reflectors	◦ Non-conformity with the lines, grades, dimensions, design and location as shown on the plans
603 - GUARDRAIL Steel or Aluminum Concrete Timber Masonry 604 - FENCING 605 - ROAD SIGNS 606 - PAVEMENT MARKINGS 607 - REFLECTIVE PAVEMENT STUDS		◦ No-provision of guardrail	◦ Non-conformity with the lines, grades, dimensions, design and location as shown on the plans ◦ Non-conformance with materials requirements ◦ Improper preparation of pavement surface prior to paint application [item 606]
608 - TOPSOIL 609 - SPRIGGING 610 - SODDING 611 - TREE PLANTING		◦ Non-conformance to scope of work and materials requirements	

** Please refer to the classification of defects of the guidelines.*

Annex D
CLASSIFICATION OF COMMON DEFECTS/DEFICIENCIES
BUILDINGS

MAJOR ITEMS OF WORK	LESS SERIOUS	SERIOUS	VERY SERIOUS
I. EARTHWORKS			
a. Excavation		◦ Non-conformance to the required lines, grades and dimensions (still correctible)	◦ Non-conformance to the required lines, grades and dimensions (no longer correctible) ◦ Non-removal of existing structures without justified reasons ◦ Non-excavation of materials/structures without justified reasons.
b. Fill materials			◦ Non-conformance to materials specifications ◦ Improper compaction (not by the layer) ◦ No compaction
c. Soil Poisoning		◦ Inappropriate method of application	◦ Non-compliance to the required thickness ◦ Non-conformance to materials specifications ◦ Non-provision of soil poisoning
II. CONCRETING WORKS (Footing, column, wall, beam, slab, concrete stair)			
a. Formworks		◦ Non-application of oil/grease ◦ Defective forms (with loose knots, splits, cracks, etc.) ◦ Corroded steel forms ◦ Inadequate supports/bracing	◦ Untimely removal ◦ Not watertight ◦ Not true to line
b. Reinforcements		◦ Use of slightly rusty rebars ◦ Use rebars with paint/oil/foreign materials	◦ Improper spacing/splicing ◦ Use of corroded/excessively rusted rebars ◦ Inadequate anchorage/lap length ◦ Not enough/unsecured ties ◦ Unaligned installation ◦ Non-provision of reinforcements ◦ Insufficient reinforcements ◦ Use of undersized reinforcements ◦ Non-utilization of spacer blocks

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BUILDINGS

MAJOR ITEMS OF WORK	LESS SERIOUS	SERIOUS	VERY SERIOUS
c. Concrete	◦ Superficial/hairline cracks	◦ Moderate temperature/hairline cracks (correctible) ◦ Honeycombs not exposing the rebars ◦ No/Improper curing ◦ Improper vibration ◦ Non-provision of concrete vibrator ◦ Poor finishes/plastering ◦ Using cement sacks for measuring aggregates ◦ Oversized aggregates on stockpile ◦ Moderate chipping on misaligned concrete	◦ Peripheral penetrating cracks ◦ Non conformance to the required dimensions/shape ◦ Insufficient concrete covering on reinforcements ◦ No concrete design mix ◦ Non-conformance to concrete design mix ◦ Misalignment of footings, columns, walla, beams, etc. ◦ Aggregates with clayey materials (stockpiled/usage) ◦ Sagging beams ◦ Bulging columns ◦ Improper location of construction joints ◦ Non-conformance to the required monolithic pouring ◦ Major chipping exposing the rebars ◦ Application of mortar finish to comply with structural dimension ◦ Peripheral honeycomb with exposed rebars
III. FINISHING a. Doors, Windows, Jambs, Railings	◦ Unfitted/Loose fasteners, connectors ◦ Minor dents on steel casing, doors, railings ◦ Unsecured/Improperly installed locks	◦ Poor quality lumber (unseasoned, not sundried /kilndried, not sawn straight) on stockpile ◦ Non-conformance to required location, alignment ◦ Non-conformance torequired number and type of fasteners, connectors such as hinges, bolts, nails ◦ Poor quality putty ◦ No/Insufficient seals/putty	◦ Poor quality lumber (unseasoned, not sundried/ kilndried, not sawn straight) installed ◦ Non-conformance with the required treatment of lumber ◦ Use of the wrong specie of lumber ◦ Unapproved substitution of the required materials ◦ Warping, splits, knots, cracks, poor surface finish that could impair the strength, durability and/or appearance ◦ Non-conformance to required dimensions ◦ Improper installation
b. Roofing (Ceiling, Roof Framing, Roof)		◦ Rusty steel elements/members/GI roofing ◦ Loose/Missing nails, bolts and nuts ◦ Minor dents on steel members ◦ Non-conformance to required side/end lapping for G.I. roofing ◦ Leak/Water marks on ceiling	◦ Deficient dimension (thickness, length, width) ◦ Warping, splits, knots, cracks, poor surface finish on lumber (ceiling, roof framing, fascia boards) purlins, rafters and other roof framing members ◦ Corroded steel elements/members/GI roofing ◦ Improper splicing of lumber ◦ Improper spacing of roof framing members ◦ Misalignment ◦ Defective/Unsound welds ◦ Unapproved substitution of the required material ◦ Improper/Inadequate treatment of lumber

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BUILDINGS

MAJOR ITEMS OF WORK	LESS SERIOUS	SERIOUS	VERY SERIOUS
c. Water Supply System		◦ Leaks on pipeline/joints	◦ Non-conformance to materials specifications ◦ Non-conformance to required dimensions, lines, slope and elevation ◦ Defective pipe layout ◦ Improper bracing of pipes ◦ Non/Inadequate provision of the required fixture(s) ◦ Failure in water system test ◦ Installed water tank/reservoir not conforming to specifications ◦ No/Inadequate water treatment required
d. Storm Drainage & Sewerage System		◦ Leaks on pipeline/joints ◦ Poor sealing ◦ Clogged sink and/or floor drain connections ◦ No plastering on inner walls of the completed septic vault	◦ Non-conformance to materials specifications ◦ Undersized sewer lines ◦ Non-conformance to required dimensions, lines, slope and elevation ◦ Improper installation ◦ Non/Inadequate provision of the accessories ◦ Deficient dimensions of septic vault ◦ No cover on septic vault
		◦ Leaks on pipeline/joints ◦ Poor sealing	◦ Damaged pipeline ◦ Failure in drainage system test ◦ No reinforcement
e. Electrical		◦ Improper/non-installation of the required conduits, electrical wirings, etc ◦ Improper grounding ◦ Unrimmed cut edges of conduit	◦ Non-conformance with materials specifications ◦ Shorted wires ◦ Non-conformance with the required interrupting capacity of circuit breaker
f. Tiles		◦ Non-conformance to required preparation of surface to receive the tiles ◦ Improper application of grouting/mortar ◦ Inadequate grouting ◦ Unaligned tile joints ◦ Uneven surface finish ◦ Chipping or cracks on tiles	◦ Non-conformance to materials specifications
g. Painting/Varnish		◦ Non-conformance to required preparation of surface to receive painting/varnish ◦ Peeling-off of paint/varnish ◦ Inadequate coating of paint/varnish ◦ Fading of paint or varnish ◦ Uneven application of paint/varnish	◦ Non-conformance to materials specifications