

Draft

The Aizawl Municipal Council

Site Development
And
Slope Modification Regulations, 2014



CONTENTS

Page No.

Chapter 1 – Definitions and Administration	1
1. Short Title, Extent, and Commencement	1
2. Purpose	1
3. Applicability	1
4. Definitions	4
5. General Provisions	5
6. Requirements for Site Development Permit Applications	8
7. Contents of Geotechnical Reports	12
8. Aizawl Municipal Council Geologic Review Board	12
9. Review of Applications	13
10. Rainy Season Site Development Restrictions	13
11. Notification of Adjacent Plot Owners	13
12. Withdrawal of Application	14
13. Expiration of Permits	14
14. Permit Granting, Refusals and Prohibited Site Development Areas	14
15. Appeals of Permit Granting or Refusal	14
16. Inspection	14
17. Cancellation of permit	16
18. Suspension of permit	16
19. Completion Certificate	16
20. Violations	16
21. Correcting Unsafe Conditions	17
22. Fees for Site Development Permit	17
Chapter 2 – Specific Site Development Requirements	17
23. Construction Safety Precautions and Procedures	17
24. Cuts / Excavations	18
25. Fills	19
26. Set-backs	20
27. Drainage	21
28. Erosion Control	22
29. Disposal of Excavated Material	22
ANNEXURE - A	
FORMS NO. 1-5	23-27
ANNEXURE - B	
Requirements for Registration and Competence of Professionals, and Professional Licence Fees	28-30

AIZAWL MUNICIPAL COUNCIL SITE DEVELOPMENT AND SLOPE MODIFICATION REGULATIONS, 2014

Chapter - 1 [Definitions and Administration]

1. Short Title, Extent, and Commencement :

- (1) These Regulations may be called **The Aizawl Municipal Council Site Development and Slope Modification Regulations, 2014**.
- (2) They shall apply to all the areas covered by the Aizawl Municipal Council.
- (3) They shall come into force on such date as the Aizawl Municipal Council may notify by Notification in the Official Gazette.

2. Purpose :

Aizawl has experienced numerous landslides, which have all too often caused loss of life and the destruction of homes, community buildings, and important infrastructure. The stability of Aizawl's slopes is primarily controlled by the underlying geology, of which the type and orientation of rock layers, the degree to which they are fractured and jointed, their permeability to water, and their strength are very important factors, in addition to the overall angle and aspect of the slope. The angle of the slope, commonly used in regulatory documents elsewhere, is but one element to be accounted for, and in Aizawl's particular geologic context is not often the controlling factor. In addition, human activities such as slope cutting, filling, increasing the amount of groundwater penetrating into slopes, and disposing of sewerage and drainage onto slopes in a poorly controlled manner can greatly increase slope instability.

It is the declared intent of the Aizawl Municipal Council to protect health and safety, which includes the reduction or elimination of the hazards of landslides, sinking areas, debris flows, rock falls, undue settlement, erosion, siltation, and flooding, and other special conditions; as well as to promote the conservation of natural resources, including topography and vegetation. To achieve these goals, the adverse effects of site development, cut and fill operations, land clearing, water runoff, and soil erosion must be minimised. Therefore, the following Regulations shall apply for the purpose of stringent control of all aspects of site development, slope modification and clearing operations and to establish procedures for issuance, administration and enforcement of a site development permit.

3. Applicability :

These Regulations shall apply to all site development works, including excavating, filling, leveling, land clearing and other earthwork construction operations and to the control of runoff from graded sites, unless such operations are specifically exempted by these Regulations.

Exemptions : A site development permit is not required for the following:

- 1) An excavation below finished grade for basements and footings of an Ordinary building, or of a Semi-Permanent or Permanent building located in an area of low landslide hazard, defined as per the Landslide Hazard Maps, which is authorized by a valid building permit. In areas not yet mapped to the standards adopted by the Landslide Policy Committee for Aizawl City, or for which such Landslide Hazard Maps are still under development, the exemption shall be granted ONLY if the average slope of the plot is less than 24 degrees.

This provision shall NOT exempt any excavations below finished grade for basements and footings of Semi-permanent or Permanent buildings authorized by a valid building permit located in areas of Moderate, High or Very High landslide hazard, per the Landslide Hazard Maps. In areas not yet mapped to the standards adopted by the Landslide Policy Committee for Aizawl City, or for which such Landslide Hazard Maps are still under development, this provision shall not exempt such excavations on plots with average slope greater than or equal to 24 degrees.

This provision shall not exempt any fill containing material from such excavation nor exempt any excavation having an unsupported height greater than one meter after completion of such structure.

This shall also not exempt any person from the requirements of Regulation 5.2 requiring lateral and subjacent support to which each coterminous owner is entitled.

- 2) Building pads on grade and approach roads for which a valid building permit has been issued. However, while a separate site development permit is generally not required for approach roads unless a cut of more than 1m in height or 10m volume is proposed, the design standards as set forth in these Regulations shall be adhered to.

Approach roads shall be designed incorporating existing contours to the maximum extent feasible. Access roads and garage entrance ways/driveways shall enter public/private roads in such a manner as to maintain adequate line of sight.

- 3) Individual cemetery graves.
- 4) Refuse disposal sites controlled by the city.
- 5) Excavations for wells, tunnels or utilities when regulated by other authorities.

- 6) Exploratory excavations performed under the direction of a soils engineer or engineering geologist. Test bores shall be protected to prevent small children or animals from falling in, and no excavation shall be left unattended unless adequately shored to prevent failure or relieved to a maximum slope of 1 horizontal to 1 vertical. All such sites shall be returned to their original condition within forty-five days unless extended under agreement with the Building Official. Test or monitoring wells established on occupied sites shall be protected by appropriate fencing or enclosure as determined by the Building Official.
- 7) An excavation which :
 - i) is less than 50 centimeters in depth, or
 - ii) does not create a cut slope greater than one meter in height measured vertically from toe to top of slope and steeper than 1-1/2 horizontal to 1 vertical, or
 - iii) comprises less than ten cubic meters on any one plot.
- 8) A fill less than 30 centimeters in depth and placed on natural terrain with a slope flatter than 5 horizontal to 1 vertical, or less than 1 meter in depth, not intended to support structures, which does not exceed 30 cubic meters on any one lot, and does not obstruct any drainage course.
- 9) When approved by the Building Official, minor site development works in an isolated, self-contained area, if there is no danger to private or public property, except in stream or river corridors or other protected natural areas where permits shall be required for all site development operations.
- 10) Emergency work necessary to preserve life or property under imminent threat of excessive erosion, slope failure or flooding may occur as required, provided the person rendering such service reports all pertinent facts to the Building Official as soon as possible and no later than fifteen days after commencement of the work. Persons performing such emergency work shall thereafter obtain a permit pursuant to Regulation 6. Any such work as may be deemed reasonably necessary to correct any erosion or slope failure, or conditions with a potential to cause erosion or slope failure as a result of such emergency work shall be performed as expeditiously as possible. An imminent threat shall not be construed to include known landslides or “sinking” areas, or ongoing erosion problems and is intended to refer to a sudden and unexpected alteration to slope stability or ponding due to natural occurrences such as heavy rain, earthquake, or other unusual circumstances.

Exemption from the permit requirements of these regulations shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of these Regulations or any other Acts or Regulations of the Aizawl Municipal Council or the State of Mizoram.

No exemption shall be allowed within three meters of any slope of 24 degrees or more, including clearing (scarifying), which would tend to increase erosion potential and reduce average slope.

4. Definitions :

For the purpose of these Regulations:

- 1) **‘Accelerated erosion’** means rapid erosion caused by artificially induced alteration of the vegetation, land surface topography or runoff patterns. Evidence of accelerated erosion is indicated by exposed soils, active gullies, rills, sediment deposits or slope failures caused by such artificial activities.
- 2) **‘Access’** means the means of an entry or exit to any plot/land or building/structure.
- 3) **‘Act’** means The Mizoram Municipalities Act, 2007 (Act. No.9 of 2007).
- 4) **‘Building Regulations’** means Building Regulations for Aizawl as approved by the Government under the Act which shall extend to the Aizawl Municipal Council area.
- 5) **‘Approved’** means approved by the Aizawl Municipal Council or any officer or person to whom appropriate power has been delegated by the Municipality.
- 6) **‘Bedrock’** means in-place solid rock.
- 7) **‘Bench’** means a relatively level step excavated into earth material designed to receive fill and prevent its movement downhill, or to level a portion or portions of a sloping surface for the purpose of a construction pad or other usable level area.
- 8) **‘Borrow’** means and is synonymous with ‘import’: earth fill material acquired from an off-site location for use in site development on a site.
- 9) **‘Building’** means any structure constructed for whatsoever purpose and of whatever materials and every part thereof, whether used as human habitation or not and includes foundations, plinths, walls, floors, roofs, chimneys, plumbing, and building services, fixed platforms, verandah, balcony, cornice or projection, part of a building or anything affixed thereto or any wall enclosing or intended to enclose any land or space and signs and outdoor display structures, monuments, memorials or any contrivance of permanent nature/stability built under or over ground.
- 10) **‘Building line’** means the line up to which the plinth of a building adjoining a street or an extension of a street or any future street may lawfully extend. It includes the lines prescribed in any development plan.
- 11) **‘Building Official’** means a person authorized by the Aizawl Municipal Council to carry out all activities necessary for regulating building construction and site development works.
- 12) **‘Clearing’** means and is synonymous with ‘scarify’: the removal of vegetation and debris down to bare soil by any method.

- 13) **‘Civil Engineer’** means an engineer who has been given licence or recognized by the Aizawl Municipal Council to practice in the field of civil works.
- 14) **‘Compaction’** means the densification of earth and solids or fill by mechanical means.
- 15) **‘Cumulative site development’** means total combined site development, including both excavation and fill, accomplished over a ten-year period.
- 16) **‘Drain’** means a conduit or channel for the carriage of storm water, sewage or other used water and includes all fittings and equipments, such as manhole, inspection chambers, traps, gullies and floor traps used for the drainage of a building. It also includes open channel used for conveying surface water.
- 17) **‘Drainage’** means a system constructed for the purpose of removal of waste and surface water.
- 18) **‘Drainage course’** means a well-defined, natural or artificial channel which conveys stormwater either year round or intermittently.
- 19) **‘Earth material’** means any rock, natural soil or fill, or any combination thereof.
- 20) **‘Engineering geologist’** means a geologist who has been given license or recognized by the Aizawl Municipal Council to practice in the field of engineering geology.
- 21) **‘Engineering geology’** means the application of geologic knowledge and principles in the investigation and evaluation of naturally occurring rock and soil for use in the design of civil works.
- 22) **‘Erosion’** means the wearing away of the ground surface by the actions of water, wind, ice, gravity, or a combination thereof.
- 23) **‘Erosion control specialist’** means and shall be synonymous with soils engineer, geotechnical engineer, engineering geologist, civil engineer, or other such individual, who has been given licence or recognized by Aizawl Municipal Council and who holds him/herself as capable and qualified in the field of site development, drainage and erosion control.
- 24) **‘Erosion hazard’** means the susceptibility of a site to erosion, based on soils, conditions and steepness of a slope, rock type, vegetation, and other site factors.
- 25) **‘Excavation’** means the mechanical removal of earth material.
- 26) **‘Fill’** means the deposit of earth materials by artificial means.
- 27) **‘Geotechnical Engineer’** *see* definition of ‘Soils Engineer.’
- 28) **‘Grade’** means the vertical location of a point or elevation on a site. (refer to ‘Slope’ for the angle of the ground surface expressed as a ratio or percentage in relation to level ground.)
 - i) *‘Existing grade’* means the grade prior to site development works.
 - ii) *‘Rough grade’* means the stage where the approximate elevation(s) of the ground surface match the approved plans.
 - iii) *‘Finished grade’* means the final grade of the site which conforms to the approved plans.

- 29) **‘Grading’** means any excavation, filling, leveling or combination thereof.
- 30) **‘Key’** means a designed compacted fill placed in a trench excavated in earth material beneath the toe of a proposed fill slope.
- 31) **‘Landslide Hazard Maps’** means the currently adopted version of the Aizawl Municipal Council Landslide Hazard Maps, created in 2014 or later to the standards adopted by the Landslide Policy Committee for Aizawl City.
- 32) **‘Lateral support’** means and refers to the support that the land or soil receives from other land or soil around it. Support is lateral when the supported and supporting lands are divided by a vertical plane.
- 33) **‘Master Plan’** means the Master Plan for Aizawl as approved by the Government under the Act which shall extend to the Aizawl Municipal Council area.
- 34) **‘Ordinary building’** means a building defined as “Ordinary” by the Aizawl Municipal Council Building Regulations, 2012.
- 35) **‘Ownership title’** means an attested copy of the Land Settlement Certificate (LSC), house pass, or sale/lease deed.
- 36) **‘Permanent building’** means a building defined as “Permanent” by the Aizawl Municipal Council Building Regulations, 2012.
- 37) **‘Permit’** means and shall be synonymous with ‘Permission’ : valid permission or authorisation in writing by the Aizawl Municipal Council or any person authorised by it in this behalf to carry out development or work regulated by these Regulations.
- 38) **‘Plinth’** means the portion of a structure between the level of the ground and the floor immediately above the ground.
- 39) **‘Professional inspection’** means inspections shall be performed by the civil engineer, soils engineer, engineering geologist or erosion control specialist. Such inspections include those performed by persons supervised by such engineers or geologists and shall be sufficient to form an opinion relating to the conduct of the work.
- 40) **‘Retaining Wall or Breast Wall’** means a wall constructed to maintain in position material capable of exerting lateral pressure.
- 41) **‘Runoff’** means the movement of surface water over ground surface.
- 42) **‘Sediment’** means eroded earth material that is carried by water, wind, gravity or ice and deposited into channels, lakes, rivers and other areas.
- 43) **‘Semi-permanent building’** means a building defined as ‘Semi-permanent’ by the Aizawl Municipal Council Building Regulations, 2012.
- 44) **‘Set back’** means the distance from the toe or top of a slope, structure or property line where site development is to occur.
- 45) **‘Shoring’** means temporary structural support.

- 46) **‘Site’** means and shall be synonymous with ‘Plot’: a parcel or piece of land enclosed by definite boundaries, where site development is performed or permitted.
- 47) **‘Site development’** means any excavation, filling, levelling, land clearing, or earth movement works or any combination thereof which qualifies either as regular or engineered site development under the terms of these Regulations.
- 48) **‘Slope’** means an inclined ground surface, the inclination of which is expressed as a ratio of horizontal distance to vertical distance, or in degrees measured from the horizontal. Slope is termed positive or negative depending on whether it rises or falls respectively from the point of observation.
- 49) **‘Soil’** means naturally occurring surficial deposits overlying bedrock.
- 50) **‘Soils Engineer (Geotechnical Engineer)’** means an engineer, given licence or recognized by the Aizawl Municipal Council who is experienced and knowledgeable in the practice of soils engineering.
- 51) **‘Soils engineering’** means the application of the principles of soil mechanics in the investigation, evaluation and design of civil works involving the use of earth materials and the inspection and testing or the construction thereof.
- 52) **‘Stream’** means any natural watercourse as shown in the Master Plan.
- i) *‘Perennial stream’* means a stream or watercourse which runs generally year round.
- ii) *‘Intermittent stream’* means a stream or watercourse which runs generally only during the rainy season and tends to dry up between seasons.
- 53) **‘Terrace’** means a relatively level step constructed in the face of a graded slope surface for erosion control, drainage and maintenance purposes.
- 54) **‘Topsoil’** means the first 400 to 800 mm of loose, friable, organic and fertile earth materials on top of a soil profile.
- 55) **‘Water break’** means a ditch, dike, dip or combination.

5. **General Provisions :**

1) Relationship to Other Regulations -

The technical regulations set forth in these regulations shall be implemented in a manner consistent with the Master Plan and the Building Regulations. An applicant constructing a building for which site development works will be performed that are not exempted by Section 3 of these Regulations, must obtain a site development permit in addition to a building permit.

2) Protection of Adjacent Property -

The permit holder and the owner of the property on which any site development works are performed shall be responsible for the prevention of damage to adjacent property. No person shall excavate on land sufficiently close to the property line to endanger any adjoining public street, sidewalk, pathway, stairway, alley, drain,

or other public or private property without taking adequate measures to support and protect such property from settling, cracking or other damage that might result. The permit holder and owner of the property are responsible for repairing any damage caused to private or public property to the original or equivalent condition, to the satisfaction of the Executive Officer.

6. Requirements for Site Development Permit Applications :

1) Requirements for All Applications -

Every person, including Central and State Government Departments and Semi-Government Departments/Organisations excluding the Defence Ministry, who intends to conduct any site development works not granted exemption under Regulation 3, shall obtain a site development permit by giving an application to the Aizawl Municipal Council in the prescribed form given in ANNEXURE - A to be purchased from the Office of the Aizawl Municipal Council. The application shall be accompanied by the prescribed fees and three copies each of the documents mentioned in Regulations 6.3 and 6.4 below for the type of site development being performed. One copy each of these documents shall be returned to the applicant after issue of permit or refusal.

2) Site Development Designation -

i) Engineered Site Development :

All site development that takes place in mapped zones of Moderate, High or Very High landslide hazard, as defined per the Landslide Hazard Maps, shall be designated as “Engineered Site Development.” All site development in areas not yet mapped to the standards adopted by the Landslide Policy Committee for Aizawl City, or for which such Landslide Hazard Maps are still under development shall be designated as Engineered Site Development if the average slope of the plot is greater than or equal to 24 degrees.

In addition, site development in any area, including areas of Low landslide hazard as defined per the Landslide Hazard Maps, shall be designated as Engineered Site Development if any of the following conditions apply:

- (1) Height of any cuts/excavations is 3 meters or more –OR–
- (2) Site development works are in excess of 200 cubic meters –OR–
- (3) Site development works are proposed to support any structure.

All engineered Site Development shall be performed in accordance with an approved site development plan and specifications, which incorporates the findings and recommendations of the geotechnical report defined below in Regulation 7, unless otherwise required by the Building Official.

ii) Regular Site Development :

Regular site development is allowed ONLY in zones of Low landslide hazard as defined per the Landslide Hazard Maps. In areas not yet mapped to the standards

adopted by the Landslide Policy Committee for Aizawl City, or for which such Landslide Hazard Maps are still under development is allowed only on slopes where the average slope of the plot is less than 24 degrees.

Site development in zones of Low landslide hazard involving less than 200 cubic meters and that will not support any structure shall be designated “*Regular Site Development*” unless the permit holder chooses to have the site development be designated as Engineered Site Development, or the Building Official determines that, due to the existence of special conditions or unusual hazards, the site development should be designated as Engineered Site Development.

3) Requirements for Regular Site Development Permit Applications -

An application for a regular site development permit (Form 1) shall be accompanied by the following supporting documentation:

- i) Copy of ownership title.
- ii) No Objection Certificate from the concerned Local Council, including No Objection from adjacent property owners to the plot boundaries shown on the site plans. The concerned Local Council shall base any refusals to issue a No Objection Certificate on verifiable concerns regarding unsafe or inappropriate site development, or on verifiable concerns that the plot boundaries are incorrectly defined. The applicant for the site development permit shall be able to request that Aizawl Municipal Council and the Aizawl Municipal Council Geologic Review Board (per Regulation 8) review the reasons for refusal to issue a No Objection Certificate and determine whether the concerns raised meet the standards described in this paragraph, and either overturn or uphold the objection based on such review.
- iii) Estimated quantities of excavation and fill, and a section drawing showing how quantities were determined.
- iv) Statement of proposed land use for the site on which the site development is to be performed.
- v) Site plans in sufficient clarity to indicate the nature and extent of the work. A site development plan shall show the existing grade and finished grade in contour intervals of sufficient clarity to indicate the nature and extent of the work and show in detail that it complies with the requirements of these regulations. The plans shall show the existing grade on adjoining properties in sufficient detail to identify how grade changes will conform to the requirements of these regulations. The maximum permissible scale of the site plan shall be as per the Regulation 5.5 of the Building Regulations. The plans shall give the location of the work, the name of the owner, and the name of the person who prepared the plan. The plans shall include the following information :

- (1) General vicinity of the proposed site.
- (2) Plot boundaries, delineated by length and bearing.
- (3) Limits and depths of cut and fill.
- (4) Location of any buildings, roads or other structures where work is to be performed, and the location of any buildings or structures within 5 m of the proposed site development.
- (5) Contours, flow areas, elevations, or slopes, which define existing and proposed drainage patterns, including storm water provisions in accordance with the requirements of Regulation 27.
- (6) Location of existing and proposed utilities, drainage facilities, sewage/septic systems, and recorded public and private easements and restricted use areas within 5 m of the proposed site development.
- (7) Location of any natural streams, riverine reserves or flood hazard areas as designated and defined by Aizawl Municipal Council.

4) Requirements for Engineered Site Development Permit Applications -

An application for a permit for engineered site development (FORM 2) shall be accompanied by the following supporting documentation:

- (i) Copy of ownership title.
- (ii) No Objection Certificate from the concerned Local Council, including No Objection from adjacent property owners to the plot boundaries shown on the site plans. The concerned Local Council shall base any refusals to issue a No Objection Certificate on verifiable concerns regarding unsafe or inappropriate site development, or on verifiable concerns that the plot boundaries are incorrectly defined. The applicant for the site development permit shall be able to request that Aizawl Municipal Council and the Aizawl Municipal Council Geologic Review Board (per Regulation 8) review the reasons for refusal to issue a No Objection Certificate and determine whether the concerns raised meet the standards described in this paragraph, and either overturn or uphold the objection based on such review.
- (iii) A statement of the quantities of material to be excavated and/or filled, and a section drawing showing how quantities were determined. Earthwork quantities shall include quantities for geotechnical and geological remediation. In addition, a statement of the quantities of material to be imported or exported from the site.
- (iv) A geotechnical report prepared by an engineering geologist or geotechnical engineer registered/licenced by Aizawl Municipal Council and containing the information in Regulation 7, and including the date of the report together with the names, addresses, and phone numbers of the firms or individuals who prepared the report.
- (v) A statement of the estimated starting and completion dates for proposed work.

(vi) Specifications containing information covering construction and material requirements.

(vii) Site plans of sufficient clarity to indicate the nature and extent of the work proposed and shall show in detail that the proposed work will conform to the provisions of these regulations and all relevant laws, rules, and regulations. The maximum permissible scale of the site plan shall be as per the Regulation 5.5 of the Building Regulations. The plans shall include or be accompanied by the following information:

(1) First sheet depicting the location of the proposed work, the name and address of the owner, and the person by whom the plans were prepared.

(2) Property limits and accurate contours of existing ground and details of terrain and area drainage.

(3) Location of any buildings or other structures on the site where work is to be performed, and the location of any buildings or structures within 5 m of the proposed site development.

(4) Location of existing utilities, roads, road reserves, recorded public and private easements, restricted use areas, septic systems, drains, natural streams, riverine reserves or flood hazard areas on the site where work is to be performed and within 5 m of the proposed site development.

(5) Limiting dimensions, elevations, or finish contours to be achieved by the site development, proposed drainage channels including storm water provisions in accordance with Regulation 27, and related construction.

(6) Detailed plans of all surface and subsurface drainage devices, walls, cribbing, dams and other protective devices to be constructed with, or as a part of, the proposed work. A map showing the drainage area and the estimated runoff of the area served by any drains shall also be provided.

(7) A drainage plan, including elevations of floors with respect to finish site grade and locations of proposed steps, slabs and fences that may affect drainage.

(8) Location and type of any proposed utilities and proposed private sewage disposal system or septic system, including the location of the soak pit/expansion area.

Recommendations in the geotechnical report shall be incorporated into the site development plans or specifications. When approved by the Building Official, specific recommendations contained in the geotechnical report, which are applicable to site development, may be included by reference.

5) Competence of Technical Personnel -

The permit holder is responsible for employing competent personnel for all designing and constructing all site development works. Qualifications and competence of the technical personnel and licence fees shall be as given in ANNEXURE - B.

7. Contents of Geotechnical Reports :

The geotechnical report required by Regulation 6.4 above shall include the following :

- 1) An adequate description of the geology of the site, including a geologic map and cross sections utilizing the most recent site development plan as a base.
- 2) Data regarding the nature, distribution and strength of existing soils.
- 3) Conclusions and recommendations regarding the effect of geologic and geotechnical conditions on the proposed development.
- 4) An opinion on the adequacy for the intended use of sites to be developed by the proposed site development, as affected by geologic and geotechnical factors, including the stability of slopes.
- 5) Recommendations for site development procedures and design criteria for corrective measures, including buttress fills, when necessary.
- 6) Identification of potential effects on adjacent property and recommendations for preventative measures, including drainage measures, slope stabilization measures, and shoring of excavations during construction.

All reports shall be subject to review by the Aizawl Municipal Council and the Aizawl Municipal Council Geologic Review Board defined in Regulation 8. Supplemental reports and data may be required as the Building Official may deem necessary. Recommendations included in the reports and approved by the Building Official shall be incorporated in the site development plan or specifications.

8. Aizawl Municipal Council Geologic Review Board :

The Aizawl Municipal Council Geologic Review Board shall be established as the body responsible for reviewing geotechnical reports accompanying site development permit applications made under these regulations, in addition to Aizawl Municipal Council staff review. The Aizawl Municipal Council Geologic Review Board shall be comprised of a minimum of three persons with the following qualifications :

- Post-graduate degree in geology or geotechnical engineering from a recognized Indian or foreign university and 10 years or more of professional experience in engineering geology or geotechnical engineering practice ; -OR-
- Graduate degree in geology or civil engineering from a recognized Indian or foreign university and 15 years or more of professional experience in engineering geology or geotechnical engineering practice.
- Demonstrated professional experience in evaluating slope stability, mitigating landslide hazard, or related topics;

The Review Board shall contain a minimum of one geotechnical engineer and two geologists. The Review Board shall also identify and recommend any necessary changes to these regulations for consideration by the Building Official and Aizawl Municipal Council. Any relaxations of these regulations shall require the unanimous agreement of the Aizawl Municipal Council Geologic Review Board. In cases where the Local Council refuses to issue a No Objection Certificate for the proposed site development, the Aizawl Municipal Council Geologic Review Board shall, at the request of Aizawl Municipal Council, evaluate the technical merits of any objections raised by adjacent property owners, and recommend to Aizawl Municipal Council whether the objections should be upheld.

9. Review of Applications :

1) General -

Prior to acceptance, the application shall be reviewed by the Aizawl Municipal Council for compliance with these Regulations. Additional information may subsequently be required to demonstrate compliance.

2) Review of Geotechnical Reports -

Geotechnical reports accompanying applications for engineered site development permits shall be reviewed by the Aizawl Municipal Council and the Aizawl Municipal Council Geologic Review Board.

3) Revisions -

Revisions to the planned site development may be required by the Building Official or the Aizawl Municipal Council Geologic Review Board. Major revisions require re-review, including re-review by the Aizawl Municipal Council Geologic Review Board, at the discretion of the Building Official.

10. Rainy Season Site Development Restrictions :

Site development during the rainy season, defined for the purposes of these Regulations as 1st May to 31st October, may present additional landslide and erosion hazards, and is subject to more stringent review. During the monsoon season, proposed site development may proceed with restrictions and additional measures at the discretion of the Building Official. In some cases, proposed site development may not be allowed to proceed during the monsoon season at the discretion of the Building Official.

11. Notification of Adjacent Plot Owners :

Owners of plots adjacent to the plot where the proposed site development would take place shall be notified by the concerned Local Council officials during the process of obtaining the No Objection Certificate from the concerned Local Council.

12. Withdrawal of Application :

The applicant may withdraw his or her application at any time prior to the approval, and such withdrawal shall terminate all proceedings with respect to such application but the fees paid shall not be refunded.

13. Expiration of Permits :

Site development permits shall be valid for a period of up to one calendar year from the date the permit is granted, with the valid duration of the permit to be determined by Aizawl Municipal Council based on the proposed start of site development operations, the type of site development, and the time remaining before the onset of the rainy season.

14. Permit Granting, Refusals and Prohibited Site Development Areas :

The Aizawl Municipal Council may either grant or deny a permit, or may grant a permit after modification(s), based on conformity with these regulations and shall communicate its decision to the applicant in the prescribed form given, in FORM No. 3. A copy thereof shall be endorsed to the concerned Local Council.

Factors considered in the refusal shall include, but not be limited to, subsurface conditions such as the rock strata and faults; nature and type of soil or rock that when disturbed by the proposed site development may create earth movement, possible saturation of fill and unsupported cuts by water, both natural and domestic; surface runoff that produces erosion; potential for damage to neighboring public or private property by proposed site development itself or by potential earth movement or erosion; and adequacy of protective measures.

No site development permit shall be issued for a project located in an area with slopes greater than 60 degrees.

15. Appeals of Permit Granting or Refusal :

Any person aggrieved by either granting or refusal of a building permit may appeal to the Board of Councillors within 30 days from the date of the order granting or denying the site development permit as per Section 145 of the Mizoram Municipalities Act, 2007.

16. Inspection :

1) General -

Site development operations for which a permit is required shall be subject to inspection by the Building Official. Professional inspection of site development operations shall be provided by the civil engineer, geotechnical engineer and/or the engineering geologist retained to provide such services as required by the Building Official.

2) Engineering Geologist -

The engineering geologist shall provide professional inspection within such professional's area of technical specialty, which shall include professional inspection of the bedrock excavation to determine if conditions encountered are in conformance with the approved report. Revised recommendations relating to conditions differing from the approved geotechnical report shall be submitted to the permit holder, the Building Official, and the civil or geotechnical engineer (if any).

3) Geotechnical Engineer -

The geotechnical engineer shall provide professional inspection within such engineer's area of technical specialty, which shall include observation during fill placement and testing for required compaction. The geotechnical engineer shall provide sufficient observation during the preparation of the natural ground and placement and compaction of the fill to verify that such work is being performed in accordance with the conditions of the approved plan and the appropriate requirements of these regulations. Revised recommendations relating to conditions differing from the approved geotechnical report shall be submitted to the permit holder, the Building Official, engineering geologist, and the civil engineer (if any).

4) Civil Engineer -

The civil engineer shall provide professional inspection within such engineer's area of technical specialty, which shall consist of observation and review as to the establishment of line, grade and drainage of the development area.

5) Permit holder -

The permit holder shall be responsible for the work to be performed in accordance with the approved plans and specifications and in conformance with the provisions of these regulations. The permit holder shall act as a coordinator between the masons and laborers constructing the building, any professional consultants involved in ensuring that the work is as per the approved plans, and the Building Official. In the event of changed conditions, the permit holder shall be responsible for informing the Building Official of such change and shall provide revised plans for approval.

6) Building Official -

The Building Official may inspect the project at the various stages of work requiring approval to determine that adequate control is being exercised by the professional consultants.

7) Site Development Inspection at Site -

Prior to the completion of any site development project, the Building Official may inspect the site to determine that the site development has been completed according to the plans and specifications submitted for the permit.

The permit holder shall notify the Building Official for the purpose of inspection:

- 1) Fourteen days prior to the beginning of the work authorized by the permit, using FORM NO. 4;
- 2) When all work, including installation of all appurtenant structures (excepting any building being constructed under the permit), and other protective devices, has been completed, but prior to the construction of the building above plinth level.

17. Cancellation of permit :

If, at any time after the issuance of the development permit, the Aizawl Municipal Council is satisfied that such permit was granted in consequence of any material misrepresentation or fraudulent statement contained in the application given or information furnished, the Aizawl Municipal Council has the right to cancel the permit and any work done or rendered shall be deemed to have been done without permission.

18. Suspension of permit :

If at any stage of the development work, the engineering geologist, civil engineer or geotechnical engineer resigns or is unable to continue supervision of the work, the permit holder shall suspend all development activity until a new technical person licensed by the Aizawl Municipal Council is appointed. During the intervening period, no development work shall be undertaken and any work shall be treated as unauthorised development;

19. Completion Certificate :

On completion of the development, the permit holder through the licensed professional who has supervised the construction shall provide a completion certificate to the Aizawl Municipal Council using FORM NO. 5.

20. Violations :

1) Notification -

Whenever the Building Official determines that the provisions of these Regulations have been violated, the Building Official shall give written notice thereof to the owner of the property.

In addition, the concerned Local Council is, by virtue of this provision, empowered to give a stay of construction of site development works within its jurisdiction, for any violation of the provisions of these Regulations or the Master Plan/Zonal Development Plan or violation of the conditions of the site development permit. The concerned Local Council shall give written notice thereof to the owner of the property. If a stay is given by the Local Council, a copy of the stay order shall immediately be forwarded to the Aizawl Municipal Council which may confirm or cancel the stay after necessary enquiry and verification.

2) Abatement -

The owner and permit holder are responsible for correcting any violations to the satisfaction of the Building Official. If the Building Official determines after investigation that adjacent or other nearby property has been damaged by the violation, the owner shall be required to pay for the damages, or to restore the property to its original or equivalent condition, to the satisfaction of the Executive Officer.

3) Offences, Penalties and Enforcement -

Contravention of any of these Regulations shall be dealt with as per the provisions of Sections 137, 374 and 386 of The Mizoram Municipalities Act, 2007.

21. Correcting Unsafe Conditions :

Whenever the Building Official determines that any existing excavation, embankment or fill on private property has become a hazard to life and limb, or endangers property, or adversely affects the safety, use or stability of a public way or drainage channel, the Building Official may give written notice thereof to the owner of the property upon which the excavation, embankment or fill is located, or other person or agent in control of said property. Upon receipt of said notice, the owner or other person or agent in control of the property shall repair or eliminate such excavation, embankment or fill so as to eliminate the hazard, in conformance with the requirements of these regulations, within the period specified in said notice.

If the owner fails to comply with the direction of the Building Official provided in said notice, the Aizawl Municipal Council can itself repair or remove any development/structure or cause it to be removed and realise the cost of such repair, demolition or removal as arrears of land revenue.

22. Fees for Site Development Permit :

[add per AMC]

Chapter 2

[Specific Site Development Requirements]

23. Construction Safety Precautions and Procedures :

1) Safety Precautions to Protect Adjacent Public and Private Property -

During the entire time from the date of issuance of the permit to the date of final approval for all site development operations, the permit holder shall take all appropriate and necessary precautions to protect adjacent public and private property from any damage that may result from the construction of site development works.

This includes temporary measures identified as necessary by the geotechnical

report or required by the Building Official, which may include shoring of excavations, timely construction of retaining walls, control of surface runoff and erosion, or other protective measures.

2) Ability to stop work / unsafe conditions -

If at any stage of the work the Building Official determines by inspection that further site development as authorized is likely to endanger any public or private property or result in the deposition of debris on any public way or interfere with any existing drainage course, the Building Official may order the work stopped by notice in writing served on any persons engaged in doing or causing such work to be done, and any such person shall immediately stop such work. The Building Official may authorize the work to proceed if the Building Official finds adequate safety precautions will be taken or corrective measures incorporated in the work to avoid likelihood of such danger, deposition or interference.

If the site development work as done has created or resulted in an unsafe condition, the Building Official shall give written notice requiring correction thereof as specified in Regulation 21.

3) Documents at Site -

The person to whom the site development permit is issued shall, during the site development work, keep a copy of the approved layout plan, drawings and specifications at the site.

24. Cuts/Excavations :

1) General -

For engineered site development, the geotechnical report must prescribe all proposed cuts, stating the site has been investigated and giving an opinion that the proposed cut slope will be stable and not create a hazard to public or private property.

For regular site development, cuts shall conform to the provisions of this section.

All proposed cuts shall be reviewed per the procedures in Regulation 8.

2) Cut Slopes -

The slope of cut surfaces shall be no steeper than is safe for the intended use and shall be no steeper than two horizontal to one vertical, unless the permit holder furnishes a geotechnical report stating the site has been investigated and giving an opinion that a cut at a steeper slope will be stable and not create a hazard to public or private property.

3) Retained Cuts -

Retaining walls not over one meter in height measured from the bottom of the footing to the top of the wall are exempt from permit requirements. If such a wall is subjected to a surcharge, such as a structure or vehicle load, sufficient

engineering shall be provided to demonstrate the adequacy of such a retaining wall to perform the function as designed and either a site development permit or building permit must be obtained depending upon the amount and depth of soil moved.

Cuts, regardless of height, which tend to alter the natural drainage of property and accelerate erosion, concentrate runoff, or otherwise create a hazardous condition, shall be reviewed by an engineer and permits obtained as provided for in these regulations.

Cuts which will be retained must be adequately shored/supported during construction in order to protect adjacent public and private property.

25. Fills :

For engineered site development, all fills shall be designed by an engineer, and fill designs reviewed by Aizawl Municipal Council. For regular site development, the following general guidelines shall apply:

1) Fill Slopes -

Fill slopes shall not be constructed on natural slopes steeper than 2 to 1. The ground surface shall be prepared to receive fill by removing vegetation, non-complying fill, topsoil and other unsuitable materials, scarifying to provide a bond with the new fill and, where slopes are steeper than 2 to 1 and the height is greater than 1.5 meters, by benching into sound bedrock or other competent material as determined by the soils engineer. The bench under the toe of a fill on a slope steeper than 5 to 1 shall be at least three meters wide. The area beyond the toe of the fill shall be sloped for sheet overflow or a paved drain shall be provided. Such drains shall be constructed with energy dissipaters and shall discharge into an approved area. When fill is to be placed over a cut, the bench under the toe of fill shall be at least three meters wide, but the cut shall be made before placing the fill and acceptance by the soils engineer or engineering geologist or both as a suitable foundation for fill.

2) Fill Material -

Detrimental amounts of organic material shall not be permitted in fills. Except as permitted by the Building Official, no rock, broken concrete, asphalt, or similar irreducible materials with a maximum dimension greater than 300 millimeters shall be buried or placed in fills. No soils containing hazardous or toxic material of any kind may be used as fill within the Aizawl Municipal Council area.

Exception : The Building Official may permit placement of larger rock when the soils engineer devises a method of placement and continuously inspects its placement and approves the fill stability. The following shall also apply:

- i) Prior to issuance of a site development permit, provisions shall be made to separate organic materials, such as tree stumps and brush, as well as large rocks. An area for stockpiling shall be delineated on the site development plans as well as provisions for their disposition.

- ii) Rock greater than 300 mm in size may be placed a minimum of 3 meters under the surface of the finish grade. Soils shall be compacted in short lifts around such materials to assure adequate filling around the large rock and preventing voids.

3) Compaction -

All fills shall be compacted to a minimum relative density of 90%. The top 450 mm may be excepted when no load is expected, and the slope does not exceed 2 horizontal to 1 vertical.

4) Slope -

The maximum slope of fill surfaces shall not exceed 2 horizontal to 1 vertical or steeper than is safe, whatever occurs first. Batter walls using only large aggregate may be excepted with proper engineering.

26. Set-backs :

Cut-and-fill slopes shall be set back from site boundaries in accordance with this section, but in no case shall the amount of set back be less than that prescribed by Regulation 22 of the Building Regulations. Set back dimensions shall be horizontal distances measured perpendicular to the site boundary.

For engineered site development, the amount of set back shall be determined by the geologist or soils engineer and included in the geotechnical report. For regular site development, the following provisions apply:

1) Top of Cut Slope -

The top of cut slopes shall not be made nearer to a site boundary line than one-fifth of the vertical height of the cut, with a minimum of 0.6 meters and a maximum of three meters. The setback may need to be increased for any required interceptor drains.

2) Toe of Fill Slope -

The toe of a fill slope shall be made not nearer to the site boundary line than one-half the height of the slope, with a minimum of 0.6 meters and a maximum of 6 meters. Where a fill slope is to be located near the site boundary and the adjacent off-site property is developed, special precautions shall be incorporated in the work as the Building Official deems necessary to protect the adjoining property from damage as a result of such site development. These precautions may include, but are not limited to :

- i) Additional set backs;
- ii) Provision for retaining or slough walls;
- iii) Mechanical or chemical treatment of the fill slope to minimize erosion;
- iv) Provisions for the control of both surface water and subsurface water, such as springs, which may exert undesirable pressures on the fill slope.

3) Modification of Slope Location -

The Building Official may approve alternative set backs. The Building Official may require an investigation and recommendation by a qualified engineer or engineering geologist to demonstrate that the intent of this section has been satisfied.

27. Drainage :

Drainage plans that provide for control of surface runoff, sewage, sillage and seepage from septic systems shall be prepared according to the following provisions.

1) Terraces -

For engineered site development, all terraces shall be prescribed by the geotechnical engineer or engineering geologist and described in the geotechnical report and on the site development plans, and reviewed by the Building Official. However, the following minimum restrictions apply for both engineered site development and regular site development. Terraces at least 2 meters in width shall be established at not more than 10 meter intervals on all cut or fill slopes to control surface drainage and debris, except that where only one terrace is required, it shall be at mid-height. For cut or fill slopes greater than 20 meters and up to 40 meters in vertical height, one terrace at approximately mid-height shall be four meters in width. Terrace widths and spacing for cut-and-fill slopes greater than 40 meters in height shall be designated by the civil engineer and approved by the Building Official. Suitable access shall be provided to permit proper cleaning and maintenance.

Swales or ditches on terraces shall have a minimum gradient of 5% and must be paved with reinforced concrete not less than 75 mm in thickness or an approved equal paving. They shall have a minimum depth at the deepest point of 300 mm and a minimum paved area of 0.7 square meters. A single run of swale or ditch shall not collect runoff from a tributary area exceeding 400 square meters (projected horizontally) without discharging into a down drain.

2) Subsurface Drainage -

Cut-and-fill slopes shall be provided with subsurface drainage as necessary for stability.

3) Disposal of Drainage -

Sites developed downhill of existing sites shall convey drainage, sewage or seepage from the adjacent site uphill, as well as from the site being developed, in a safe manner to the nearest practicable drainage way or sewer approved by the appropriate jurisdiction as a safe place to deposit such waters or sewage. Erosion of ground in the area of discharge shall be prevented by installation of non-erosive downdrains and other devices. "Building pads shall have a drainage gradient of 2% minimum toward approved drainage facilities unless waived by the Building Official. "Exception. The gradient from the building pad may be 1% if all of the following conditions exist throughout the permit boundary area:

- i) No proposed fill area is greater than three meters in maximum depth;
- ii) No proposed finish cut or fill slope faces have a vertical height in excess of three meters;
- iii) No existing slope faces that have a slope face steeper than 10 horizontal to 1 vertical have a vertical height in excess of three meters.

4) Interceptor Drains -

Paved interceptor drains shall be installed along the top of all cut slopes where the tributary drainage area above the slopes that drains toward the cut, has a drainage path greater than 10 meters measured horizontally. Interceptor drains shall be paved with a minimum of 75m of concrete or gunite and reinforced. They shall have a minimum depth of 300mm and a minimum paved width of 800 mm, measured horizontally across the drain. The slope of the drain shall be approved by the Building Official.

5) Maintenance of drainage -

The owner shall be responsible for maintaining drainage facilities installed under their permit.

28. Erosion Control :

The following shall apply to all cut-and-fill slopes -

The faces of cut-and-fill slopes shall be prepared and maintained to control against erosion. This control may consist of effective planting, use of armor rock, terracing, water breaks, check dams, cribbing, riprap, or combinations thereof. The protection for the slopes shall be installed as soon as practicable and prior to calling for final inspection. During the approach of the rainy season, the contractor performing the work shall be prepared to install temporary measures as required to protect exposed areas until permanent measures can be taken. Where cut slopes are not subject to erosion, due to the erosion resistant character of the materials, such protection may be omitted with the permission of the Building Official.

For plots adjacent to or including natural streams, the riverine reserve shall be maintained, and measures shall be taken to prevent erosion of materials or sediment from the site into the stream or riverine reserve.

29. Disposal of Excavated Material :

1) Any person performing any site development that involves imported or exported materials shall take special precautions, as approved by the Building Official, to prevent such materials from being deposited on the adjacent public way, and/or drainage courses or riverine reserves.

2) Dispose of excavated material not used at the site at a location approved by the Aizawl Municipal Council.

FORM NO. 1

ANNEXURE - A

FORM NO. 1

APPLICATION FOR REGULAR SITE DEVELOPMENT OF LAND

[Regulation 6 of the AMC Site Development & Slope Modification Regulations, 2014]

To

The Secretary
Aizawl Municipal Council, Aizawl

Sir,

I/We _____ [Name(s) in full], owner(s)/lessee(s) of the land the particulars of which are given below, hereby apply for permission to conduct site development works on the Land of L.S.C. No. _____ on/in Plot No. _____ in _____ Veng and in accordance with Regulation 6 of the AMC Site Development & Slope Modification Regulations, 2014. I/we forward herewith the following documents in triplicate duly signed by me/us and the Licensed Geologist/Geotechnical Engineer/Civil Engineer/Supervisor/Group/Firm:

- 1) *Site Plan as prescribed in Regulation 6.3.*
- 2) *Estimated quantities of excavation and fill.*
- 3) *Statement of proposed land use for the site on which the site development is to be performed.*
- 4) *Ownership title.*
- 5) *Attested copy of receipt of application fee.*
- 6) *No Objection Certificate (NOC) from the concerned Local Council.*

I request that the construction be approved and site development permit issued to me.

Yours faithfully,

Signature : _____

NAME (in block letters) : _____

Address : _____

(Indicate House No.) : _____

Phone : _____

FORM NO. 2

APPLICATION FOR ENGINEERED SITE DEVELOPMENT OF LAND

[Regulation 6 of the AMC Site Development & Slope Modification Regulations, 2014]

To
The Secretary
Aizawl Municipal Council
Aizawl
Sir,

I/We _____ [Name(s)
in full], owner(s)/lessee(s) of the land the particulars of which are given below, hereby apply
for permission to conduct site development works on the Land of _____ L.S.C.
No. _____ on/in Plot No. _____ in _____ Veng
and in accordance with Regulation 6 of the Aizawl Municipal Council Site Development Regu-
lation, 2014. I/we forward herewith the following documents in triplicate duly signed by me/us
and the Licensed Geologist/Geotechnical Engineer/Civil Engineer/Supervisor/Group/Firm:

- 1) *Geotechnical report as prescribed in Regulations 6.4 and 7.*
- 2) *Site Plan as prescribed in Regulation 6.4.*
- 3) *Estimated quantities of excavation and fill.*
- 4) *Estimated starting and completion dates for proposed work.*
- 5) *Specifications*
- 6) *Ownership title.*
- 7) *Attested copy of receipt of application fee.*
- 8) *No Objection Certificate (NOC) from the concerned Local Council.*

I request that the construction be approved and site development permit issued to me.

Yours faithfully,

Signature : _____

NAME (in block letters) : _____

Address : _____

(Indicate House No.) : _____

Phone : _____

FORM NO. 3

GRANT OR REFUSAL OF DEVELOPMENT PERMIT

[Regulation 13 of the AMC Site Development & Slope Modification Regulations, 2014]

No. _____

Dated _____

To

Sir,

With reference to your application No. _____

Dated _____ for site development of the Land of L.S.C.
No. _____ on/in Plot No. _____ in _____

Veng, I have the honour to inform you that permission has been granted/permission has been granted with the following modifications/conditions/permission cannot be granted by the Municipality on the following grounds:

Modifications/Conditions/Grounds for rejection of the application:

(1) _____

(2) _____

Office Seal

Yours faithfully.

(_____)

Memo No _____ Dated Aizawl, the _____

Copy to :

1. *The President, Village Council/Court* _____

Secretary
Aizawl Municipal Council

FORM NO. 4

NOTICE FOR COMMENCEMENT OF DEVELOPMENT WORK

[Regulation 15 of the AMC Site Development & Slope Modification Regulations, 2014]

To

Secretary,
Aizawl Municipal Council, Aizawl

Sir,

I have the honour to inform you that site development works on the Land of L.S.C. No. _____ on/in Plot No. _____ in _____ Veng will be commenced on _____ as per your permission given vide No. _____ dated _____

I request that the construction be approved and site development permit issued to me.

Yours faithfully,

Signature : _____
NAME (in block letters) : _____
Address : _____
(Indicate House No.) _____
Phone : _____

FORM NO. 5

COMPLETION CERTIFICATE:

[Regulation 18 of the AMC Site Development & Slope Modification Regulations, 2014]

To

Secretary,
Aizawl Municipal Council,
Aizawl, Mizoram.

Sir,

I have the honour to inform you that the site development works on the Land of L.S.C. No. _____ on/in Plot No. _____ in _____ Veng has been completed in accordance with permit No. _____ dated _____. The work has been completed on _____.

The work has been executed in accordance with the permit given and no provisions of the Site Development Regulations have been violated.

Yours faithfully,

Signature : _____
Name of Permit Holder : _____
Address : _____

CERTIFICATE

I hereby certify that the work has been supervised by me and completed in accordance with the approved plan and specifications approved by the Municipality and no provisions of the Site Development Regulations for Aizawl Municipal Council, 2014 have been violated.

Date:

Address:

Signature : _____
Name of Supervisor : _____
Licence/Registration No. _____

REQUIREMENTS FOR REGISTRATION AND COMPETENCE OF PROFESSIONALS, AND PROFESSIONAL LICENCE FEES

A.1 General:

The required qualifications for licenced/registered technical professionals and their competence to carry out different jobs under a site development permit and for supervision of site development works are given below.

A.2 Engineering Geologist:

The minimum qualifications for an engineering geologist shall be a graduate or post-graduate degree in Geology from a recognized Indian or foreign university or member of Member of Indian Society of Engineering Geology or equivalent overseas institution and:

- i) Minimum 3 years relevant experience in professional geology practice with site investigation field work under a qualified geologist – OR-
- ii) Minimum of 3 years relevant experience in professional geology practice with site investigation field work and completion of the AMC examination for engineering geologists.

A-2.1 Competence - The registered engineering geologist shall be competent to carry out the work related to the site development permit as given below:

- (a) Preparation of geotechnical report in support of a site development permit.
- (b) Inspection of construction excavations.
- (c) Issuing of certificate of supervision and completion for site development works.

A-3 Civil Engineer

The minimum qualification for a civil engineer shall be a graduate degree in Civil Engineering from a recognised Indian or foreign university, or the Member of Civil Engineering Division of the Institute of Engineers (India) or the statutory body governing such profession, as and when established.

A-3.1 Competence - The registered civil engineer shall be competent to carry out the work related to the site development permit as given below:

- (a) Preparation of all site, grading and drainage plans and related information connected with site development permit;
- (b) Design of drainage structures, including hydrology and hydraulic calculations;
- (c) Inspection of civil works excluding stability of excavations; and
- (d) Issuing certificate of supervision and completion for site development works.

A.4 Soils/Geotechnical Engineer :

The minimum qualifications for a soils/geotechnical engineer shall be a graduate degree in Civil Engineering from a recognized Indian or foreign university and:

- (i) Post-graduate degree in Soils / Geotechnical Engineering from a recognized Indian or foreign university – OR -
- (ii) Minimum 3 years relevant experience in professional soils/geotechnical engineering practice with design work under a qualified soils/geotechnical engineer – OR-
- (iii) Minimum of 3 years relevant experience in professional soils/geotechnical engineering practice with design work and completion of the AMC examination for soils/geotechnical engineers.

A-4.1 Competence - The registered geotechnical engineer shall be competent to carry out the work related to the site development permit as given below:

- (a) Preparation of geotechnical report in support of a site development permit.
- (b) Inspection of fills and excavations in soil.
- (c) Issuing of certificate of completion for site development works.

A-5 Supervisor :

The minimum qualifications for a supervisor shall be diploma in civil engineering or the qualification in architecture or engineering equivalent to the minimum qualification prescribed for recruitment to non-gazetted service by the Government of Mizoram plus 5 years experience in civil works design, construction and supervision.

A-5.1 Competence - The registered supervisor shall be competent to carry out work related to the site development permit as given below:

- (a) Supervision of site development works, excluding stability of excavations, and
- (b) Issuing certificate of supervision and completion for ONLY regular site development works.

A-6 Group/Firm:

When a group or firm comprising of qualified engineering geologist/civil engineer/soils engineer/supervisor is practicing, then the qualification and competence of work will be the combination of the individual qualification and competence, as given under A-2 through A-5, respectively, and the group or firm shall be licensed by the Municipality.

