CITY OF BOISE

INTER-DEPARTMENT CORRESPONDENCE

Date: May 24, 2016

To: David Moser
Planning and Development Services

From: Jason C Taylor, P.E
Public Works Engineering

Subject: Malibu Manor Subdivision
Preliminary Hillside Grading Plan Review
Preliminary Hydrology Report Review
CFH16-00018 & SUB16-00016
PWE 822

Malibu Manor Subdivision is a proposed 4 lot development in the upper Boise foothills. The proposed development is located off of Warm Springs Avenue in the Warm Springs Mesa Subdivision. The site consists of approximately 1.39 acres of undeveloped moderately sloping hillsides with slopes of 6:1 (17%) at the bottom and as steep as 2:1(50%) in the upper areas. The majority of the site has surficial soils consisting of silty clay topsoil underlain by sandy silt and silty sand. Vegetation is primarily mature trees, sagebrush, bunchgrass and other native vegetation typical of the semi-arid Boise foothills. Boulders are present onsite but were not encountered in test pits. Boulder excavation should be expected. The general site drainage is east to west through surficial infiltration and run-off.

Grading Plan Review

The proposed grading for this development satisfies the intent of the Hillside and Foothills Areas Development Ordinance. The preliminary grading plan (RiveRidge Engineering dated March 29, 2016) indicates that the majority of the grading is for construction of driveways, infrastructure, and lot padding. Proposed construction will move approximately 1500 cubic yards of material which will be placed in the building pad areas. The project is projected to achieve a balanced earthwork condition (i.e.; no import or export of cut/fill material) with the current preliminary design. The maximum cut proposed is approximately 10 feet and is being done to construct the far northern building pad. The maximum fills proposed are approximately 3 feet for construction of building pads and blending of existing grades. This cut and fill for individual homes will not be performed until after final plat has been approved.

The slope of the private driveways will be required to meet current Zoning and Fire Department

Access requirements prior to construction. The proposed lots will require individual Planning & Zoning Hillside applications and required engineering plans to determine the feasibility of the proposed residence construction after the final plat has been approved.

Geotechnical Review

The Geotechnical Engineering Report submitted by Materials Testing & Inspection, Inc. (dated March 23, 2016, Addendum #1 dated March 28, 2016, and Addendum dated May 23, 2016) included multiple exploratory locations, laboratory testing, and a geologic and geotechnical literature review. The onsite soils consisted of varying mixtures of silts, clays and sands. The report did conclude that the onsite soils were adequate to support the proposed development. This will need to be addressed in the Final Geotechnical Engineering Report prior to any onsite grading activities or final plat.

Additional geotechnical exploration, including test pits and or test borings, may need to be performed prior to final approval and the issuance of a grading permit. Specific areas of investigation that will need further investigation, as identified in the Public Works Hillside Development – Requirements for Technical Reports manual include:

1. Stormwater Disposal – Soils will be evaluated for infiltration, allowable infiltration rates, liner types, and recommended setback distances from structures, slopes, and potential impacts of subsurface drainage on existing downstream structures and domestic water wells. This report should address the ACHD pond that is proposed to be used outside this development.

2. Earthwork and Grading – Final earthwork and grading recommendations will be required and should include: Suitable onsite soil types, evaluation of onsite soils for use as structural fill, testing requirements of fill, recommended over-excavations(in any), embankment construction, fill placement recommendations, additional recommendations relative to specific soil characteristics at proposed deep cut locations, reusability of soils developed from cut locations, boulder/rock outcropping depths and construction issues with removal or blending with fills, and recommendations for boulder removal onsite and adjacent to the water tank foundation. Additional recommendations based on proposed grading plan.

3. Slope Stability Analysis- Slope stability analysis shall be performed to address the identified landslide deposits. Sampling and testing shall be sufficient enough to address saturated strength of materials, depth to slide surface, potential for future movements, and risks to proposed structures and roadways/driveways. The evaluation should include a numerical slope stability analysis and report. Minimum industry standard factors of safety should be applied under saturated and psuedostatic conditions that include vertical and horizontal accelerations.

Revegetation Plan

The Preliminary Revegetation Plan was not submitted for this subdivision as required by Public Works Hillside Development Manual for technical reports and the Boise City Hillside and

Foothills Areas Development Ordinance. The revegetation plan will need to be submitted and approved prior to any onsite grading activities or final plat.

Hydrology Report

Pre Development Conditions

Pre development drainage consists of infiltration into onsite soils and surface flows directed to the property boundaries located along the west side of the proposed subdivision. Surface infiltration is the predominant drainage disposal feature for small storm events with low rainfall intensities. Surface flow occurs during higher intensity storms typical for a thunderstorm event or in winter when there is a rain on snow on frozen ground event. Pre development runoff volume was estimated to be 1615 cubic feet.

Post Development Conditions

The Developer is proposing to accommodate drainage from the subdivision by capturing stormwater runoff along the south property boundary and conveying this water in a pipe and drainage swale to an existing ACHD drainage pond located approximately 350 feet west of the subject property. Roof drainage will be collected at each residence which will be connected to a pipeline along the west property boundary. Surface flows will be captured by a drainage swale that will be located above the roof drain collection pipe and intercepted with inlets placed at the surface of the swale. The roof drain and swale flows will be combined in a manhole located at the northwest corner of Lot 1and and conveyed in a pipe from there to the previously referenced ACHD pond.

Post development runoff volume was estimated to be 2,422 cubic feet, an increase of 807 cubic feet from predevelopment conditions.

Post development runoff rate was estimated to be 1.82 cubic feet per second.

The concept of sending drainage from this subdivision to ACHD's pond is acceptable to Public Works contingent upon approval by ACHD.

Conclusions

The proposed area, as determined by the geological, hydrological, and soils engineering analysis, has been shown to be capable of the volume and type of development proposed. Cut and fills for subdivision construction have been minimized to ensure compliance with the Hillside Ordinance. Fill areas will require engineering oversight and construction monitoring prior to approval by Public Works staff to ensure soil stability. All individual lots within this development will be subject to the Hillside and Foothills and Development Standards Ordinance and will be required to submit individual engineering reports and analysis.

The proposed drainage concept, if properly implemented and accepted by ACHD, should have a nominal impact to existing drainage conditions. The existing ACHD pond appears to be large enough to accommodate additional inflows from the Malibu Subdivision without significantly

changing hydrologic conditions below the pond.

Final drainage details, including driveway plans, geotechnical documentation, and system capacity verification can be provided in the Final Hydrology Report and Grading and Drainage plans for the project.

Recommended Conditions of Approval (Site Grading)

1. This note shall be added to the plat, "All site work shall comply with the Boise City Hillside and Foothills Areas Development Ordinance (11-07-08), Chapter 18 (Soils & Foundations) and Appendix J of the International Building Code and the conditions of approval for CFH16-00018".

2. Prior to the start of earthwork construction, the project engineer shall obtain the necessary permits and hold a preconstruction meeting. Authorized representatives from the project engineer, the contractor, the developer, the geotechnical engineer and Boise City Public Works shall attend this meeting.

3. All earthwork must be done in compliance with the recommendations contained in the Final Geotechnical Engineering Report submitted by Materials Testing & Inspection, Inc. and under the direct supervision of the geotechnical engineer. Inspection and testing of earthwork is to be provided by a soils engineer/testing laboratory. Embankment compaction test data and daily logs of construction activities shall be submitted to Public Works by the Project Engineer on a weekly basis.

4. Unforeseen or difficult soil conditions may be encountered during earthwork activities. If soil conditions, weather conditions, or other situations alter work activities or potentially impact satisfactory completion of work; the City shall be immediately notified. The geotechnical engineer shall respond to these conditions in a manner acceptable to the City. If these conditions are not appropriately dealt with, a work stoppage will be imposed on the project until satisfactory resolution of these problems can be achieved.

5. Stripping and topsoil removal shall not be done on an area until just prior to cutting or filling in the area.

6. If excess waste materials or excavated materials are to be removed from the site, positive measures shall be taken to prevent soil and other debris from being deposited on existing streets. **Any offsite disposal of excess cut material must be approved in advance by Boise Public Works.** The permitee shall also repair any damage the work causes to existing public and/or private property.

7. The permittee shall apply water or other dust palliative to control dust when necessary.

8. All slopes and disturbed area shall be protected in accordance to an approved erosion control plan & revegetated in accordance to the approved revegetation plan and report.

9. If blasting is required, it shall be done in compliance with a blasting permit obtained from the Boise City Fire Department.

10. No operation of heavy equipment shall occur prior to 7:00 a.m. or later than 7:00 p.m., Monday through Saturday. Upon request work may be permitted outside of these hours on limited basis provided that there is not excessive disturbance to adjacent property owners from noise and/or lights.

11. **Boise City shall be reimbursed for review and inspection costs associated with Hillside Ordinance Requirements.**

12. Final reports as required by Appendix J of the International Building Code shall be provided prior to full release of grading performance security. Record drawings must include the location and the invert of the stormdrain stubouts to the individual lots.

13. The Owner/Contractor must provide for temporary erosion protection of all disturbed slopes on an as required basis until the project is successfully revegetated. The intent of this condition is to minimize erosion to this project and to prevent the transport of eroded materials outside the boundary of this project. The Owner/Contractor shall have onsite or readily available sandbags, sediment fence or other materials deemed necessary by the Project Engineer for emergency response to drainage, erosion or sedimentation problems.

14. All bonding for grading, erosion protection, revegetation and related work, including an agreement to perform work under this permit, shall be submitted to and accepted by Boise City prior to the issuance of a grading permit. In the event of default and/or failure to complete the project and to perform the conditions stipulated herein, the developer/landowner hereby grants to Boise City and their agents the right of access to the property to do the work as necessary to complete the improvements and/or restore drainage and aesthetics of the site.

15. The Contractor and/or Developer, to whom this permit is issued, shall be responsible for maintaining the project site in a safe, environmentally stable condition. If the Project Engineer is notified of unacceptable conditions at the project site, including but not limited to, excessive dust generation, excessive erosion of soil materials from the site and deposition of these materials on adjoining properties, and the permittee does not respond to and resolve these matters, then the City of Boise reserves the right to direct and have said unacceptable conditions corrected by a contractor of its choice. The cost of said work will be paid for by the Developer or Contractor as appropriate. In the event the Developer will not pay for work performed, the City will demand payment from the grading bond held for this grading work.

16. Any changes to the Grading, Erosion Control or Revegetation plan shall be forwarded to the Public Works Department in writing for review and approval **prior to commencing with actual construction.**

17. Any correspondence and communications relative to this permit shall be directed to the Department of Public Works with copies to the Building Department.

18. This project falls within the boundaries of the "Foothills". As such all buildings are required to contain Class A roofs and a 30-foot defensible space on the sides of the properties that boarder wildlands. Information on naturally fire resistive plant materials can be obtained from the International Fire Code Institute (IFCI) Urban-Wildland Interface Code, The National Fire Protection Association (NFPA) Standard #299, National Forest Service, Boise Interagency Fire Center, Boise National Forest, Idaho State Forest Service, Federal Bureau of Land Management (BLM), Boise Parks and Recreation Department Urban Forester, and the Colorado State Forest Service. For additional information call the Boise Fire Department at 384-3827.

19. The landscape architect shall be required to perform the following tasks:

    a. Sample the stockpiled topsoil and make any recommendations for necessary soil amendments before the topsoil is redistributed on the disturbed slopes

    b. After the topsoil has been applied to the slopes the landscape architect shall inspect and certify that the topsoil has been properly amended and spread at the minimum thickness recommended in the revegetation report.

    c. After the hydroseed and mulch have been applied the landscape architect shall inspect and certify that the correct rates were applied.

    d. After the first year of revegetation the landscape architect shall write a report on the progress and success of the revegetation. The report shall address the need for any remedial revegetation work that may be required. Periodic reports shall be required thereafter on an as needed basis until the landscape architect certifies the revegetation is complete. At this time the revegetation bond shall be released.

<u>Recommended Conditions of Approval (Hydrology)</u>

1. A Final Hydrology Report and Drainage Plans are required at or prior to the time of Final Plat submittal. Report and plans shall be approved by Public Works prior to signature of the Final Plat by the City Engineer. The Final Hydrology Report shall include but not be limited to the following information:

    A. A full and complete description of the project hydrology including: analysis or comments on characteristics of upslope drainage areas, the provision for drainage through the project, drainage from the project area (both for predevelopment and post-development conditions), current condition of downslope drainage area and conveyance systems, and the effects that the new project will have on the downslope drainage system.

    B. A full discussion of pre-development and post-development peak runoff rates and volumes. Supporting documentation in the form of calculations, computer program input and output data, and drainage maps of the project

drainage basin will be included.

C. The location and size of drainage control facilities and a description of methods for controlling runoff from the new development.

D. A description of how hydrologic hazards, present at the site, will be mitigated to the point where development can be allowed.

E. A discussion of the effects that onsite detention and discharge will have on the downslope drainage basin. Specifically, the report will contain a pre-development hydrograph, which is generated for the most downslope point in the project. A post-development hydrograph will also be provided. The post-development hydrograph will show that the peak discharge, as a result of new development, is no greater than pre-development peak flow at the most downslope point in the development for all storm events up to and including the one hundred (100) year storm.