



**MULTNOMAH COUNTY OREGON**  
**LAND USE AND TRANSPORTATION PROGRAM**  
1600 SE 190<sup>TH</sup> Avenue Portland, OR 97233  
PH: 503-988-3043 FAX: 503-988-3389  
[http://www.co.multnomah.or.us/dbcs/LUT/land\\_use](http://www.co.multnomah.or.us/dbcs/LUT/land_use)

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## NOTICE OF DECISION

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This notice concerns a Planning Director Decision on the land use case(s) cited and described below.

**Case File:** T2-04-050

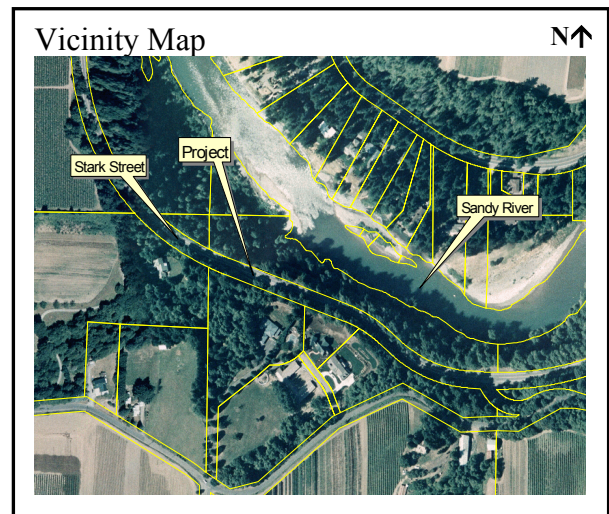
**Permit:** Hillside Development and Flood  
Development Permit

**Location:** No Situs Address  
Section 01D, 1S-3E  
R99999-9934

**Applicant:** Randall Shannon  
Multnomah County  
1600 SE 190<sup>th</sup> Ave  
Portland, Oregon 97233

**Tributary:** Sandy River

**FIRM** Panel #410179-0238A, dated 6/15/1982  
**Map:**



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**Summary:** Application for a Hillside Development and Flood Development Permit to repair/replace the decking, railing, lighting and foundation of a viaduct structure on Stark Street adjacent to the Sandy River.

**Decision:** **Approved, with conditions.**

**Unless appealed, this decision is effective Friday, October 1, 2004 at 4:30 PM.**

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Issued by:

By: \_\_\_\_\_  
Adam Barber, Planner

For: Karen Schilling - Planning Director

Date: Friday, September 17, 2004

**Opportunity to Review the Record:** A copy of the Planning Director's Decision, and all evidence submitted associated with this application, is available for inspection, at no cost, at the Land Use Planning office during normal business hours. Copies of all documents may be purchased at the rate of 30-cents per page. The Planning Director's Decision contains the findings and conclusions upon which the decision is based, along with any conditions of approval. For further information on this case, contact Adam Barber, Staff Planner at 503-988-3043.

**Opportunity to Appeal:** This decision may be appealed within 14 days of the date it was rendered, pursuant to the provisions of **MCC 37.0640**. An appeal costs \$250 and must state the specific legal grounds on which it is based. To obtain appeal forms or information on the procedure, contact the Land Use Planning offices at 1600 SE 190th Avenue (Phone: 503-988-3043). This decision cannot be appealed to the Land Use Board of Appeals (LUBA) until all local appeals are exhausted.

This decision is final at the close of the appeal period, unless appealed. The deadline for filing an appeal is **Friday, October 1, 2004 at 4:30 pm**.

**Applicable Approval Criteria: Multnomah County Code (MCC):** **MCC 36.3100 – 36.3185**, Rural Residential Zone District; **MCC 36.5500 – 36.5525**, Hillside Development Permit; **MCC 29.620 – 29.630**, Flood Hazard Regulations; **MCC 29.620 – 29.630**; Chapter 37 – Administration and Procedures,

Copies of the referenced Multnomah County Code sections can be obtained by contacting our office at 503-988-3043 or by visiting our website at:

[http://www.co.multnomah.or.us/dbcs/LUT/land\\_use/index.shtml](http://www.co.multnomah.or.us/dbcs/LUT/land_use/index.shtml)

### **Scope of Approval**

1. Approval of this land use permit is based on the submitted written narrative(s) and plan(s). No work shall occur under this permit other than that which is specified within these documents. It shall be the responsibility of the property owner(s) to comply with these documents and the limitations of approval described herein.
2. **This land use permit expires two years from the date the decision is final** if; (a) development action has not been initiated; (b) building permits have not been issued; or (c) final survey, plat, or other documents have not been recorded, as required.

### **Conditions of Approval**

The conditions listed are necessary to ensure that approval criteria for this land use permit are satisfied. Where a condition relates to a specific approval criterion, the code citation for that criterion follows in parenthesis.

1. **The property owner shall record a copy of the Notice of Decision cover sheet and conditions of approval with the Multnomah County Recorder within 30 days of the date this decision becomes final. This decision will become final Friday, October 1, 2004 at 4:30 pm if no appeal is filed. A copy of the recorded document shall be submitted to the Land Use Planning Office prior to the building permit sign-off (MCC 37.0670).**
2. **Pfeiffer, P.E shall observe the site and verify in writing that the completed project complies with Mr. Pfeiffer's March 17<sup>th</sup>, 2003 geotechnical recommendations (MCC 36.5515(F)(3)),**

(Exhibit AX). A different professional (engineer or engineering geologist) can be used to observe the work and verify the project has been completed in accordance with the March 17<sup>th</sup>, 2003 geotechnical recommendations if the name of the professional is submitted to the Director prior to the issuance of the permit (MCC 36.5515(F)(3)).

3. The property owner shall maintain best erosion control practices through all phases of development. Erosion control measures are to include the installation of barriers at the toe of all disturbed areas and post construction re-establishment of ground cover where possible. Revegetation shall occur no later than 14 days after construction activities have ceased. Straw mulch, erosion blankets, or 6-mil plastic sheeting shall be used as a wet weather measure to provide erosion protection for exposed soils. All erosion control measures are to be implemented as prescribed in the current edition of the *Erosion Prevention Sediment Control Plans Technical Guidance Handbook*, copies of which are available for purchase at our office, our through the City of Portland.
4. The applicant is responsible for removing any sedimentation caused by development activities from all neighboring surfaces and/or drainage systems. If any features within adjacent public right-of-way are disturbed, the applicant shall be responsible for returning such features to their original condition or a condition of equal quality.
5. On-site disposal of construction debris is not authorized under this permit. Spoil materials removed off-site shall be taken to a location approved for the disposal of such material by applicable Federal, State and local authorities. This permit does not authorize dumping or disposal of hazardous or toxic materials, synthetics (i.e.tires), petroleum-based materials, or other solid wastes which may cause adverse leachates or other off-site water quality effects.
6. The County may supplement described erosion control techniques if turbidity or other down slope erosion impacts result from on-site grading work. The Portland Building Bureau (Special Inspections Section), the local Soil and Water Conservation District, or the U.S. Soil Conservation Service can also advise or recommend measures to respond to unanticipated erosion effects.
7. If, during construction, cultural resources are uncovered the applicant/owner shall immediately cease development activities and inform the Multnomah County Planning Director and the State Historic Preservation Office (ORS 358.905 and ORS 97.740).
8. All electrical utilities must be substantially impermeable to the passage of water and located at least one foot above the base flood level (MCC 29.606(C)(1)).

**Follow up requirements after construction:**

9. Once construction is completed, the Project Engineer shall submit a statement certifying that all work has been completed pursuant to the referenced specifications.

### **Note**

Once this decision becomes final, applications for building permits may be made with the City of Gresham. **When ready to have building permits signed off, call the Staff Planner, Adam Barber, at (503)-988-3043 to schedule an appointment.** Multnomah County must review and sign off building permit applications before they are submitted to the City of Gresham. Four (4) sets each of the site plan and building plans are required at the building permit sign-off.

### **Notice to Mortgagee, Lien Holder, Vendor, or Seller:**

ORS Chapter 215 requires that if you receive this notice it must be promptly forwarded to the purchaser.

## **DECISION OF THE PLANNING DIRECTOR**

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### **Findings of Fact**

#### **1.0 Summary of Request**

Staff: Multnomah County proposes replacement of the Stark Street Viaduct road deck, widening 900-linear feet of Stark Street, relocation of the roadway drainage system in the project area, concrete repair of the viaduct footings, and installation of shotcrete ground armoring adjacent to the bridge footings to mitigate an ongoing erosion problem. The project site is located southwest of the Sandy River and southeast of Troutdale within Section 6, of Township 1 North, Range 4 East of the Willamette Meridian, Multnomah County, Oregon (Exhibit A1). The Viaduct, constructed by the Multnomah County Road Department in 1915, is a narrow concrete arch and deck structure with one span facilitating two lanes of traffic, pedestrians and bicycles. The structure is 98 feet in length and 23 feet in width.

Due to its age, the viaduct has become structurally deficient and functionally obsolete according to the applicant, a County engineer. The arch is cracked near the apex, and support has eroded from beneath the abutments. Load ratings indicate that the viaduct deck has inadequate strength to meet current needs. As a result, the viaduct is currently posted with restricted loads.

The proposed work will occur within the public road right of way on Rural Residentially zoned land. The project qualifies as a review use in the Rural Residential zone district as this project is designed to protect an essential public structure and roadway (Multnomah County Code, MCC 36.3125(E)). The project site is also located within a Significant Environmental Concern (SEC) zoning overlay designed to protect wildlife habitat and water resources. The act of maintaining roadways and structures (as proposed) is an exempt from the SEC review as specified by Multnomah County Code 36.4520(E). The project falls within a mapped slope hazard zone and therefore requires a Hillside Development Review (MCC 36.5505). The project also involves alteration to a watercourse and therefore requires a Flood Development Review (MCC 29.623(B)).

#### **2.0 Vicinity and Property Description**

Staff: The section of Stark Street to be altered is located southeast of the City of Troutdale within Section 6, of Township 1 North, Range 4 East of the Willamette Meridian, Multnomah County, Oregon (Exhibit A1). The project is located at roughly 220 foot elevation within 100-feet of the Sandy River's west (left) bank (Exhibit A2). Within the project area, Stark Street spans a gully with a viaduct structure retained by walls up to 30' high on the north side of the structure. The area is surrounded to the north and south by steep slopes with Stark Street running in an east-west alignment through the project site.

The north side of Stark Street (the area of the road to be widened) is well vegetated with grasses, ferns and low lying shrubs set on an average of four feet outside of the existing asphalt and rock shoulder. A drainage way flows over a cliff above (south of) Stark Street, through an existing 48 inch culvert under the viaduct structure and discharges north of of the viaduct, flowing over an exposed basalt cliff edge towards the Sandy River below. The culvert inlet south of the

viaduct is surrounded by a three foot tall rock wall which will remain in place throughout construction.

### **3.0 Noticing Requirements**

**Upon receipt of a complete application, notice of the application and an invitation to comment is mailed to the applicant, recognized neighborhood associations and property owners within 750-feet of the subject tract (MCC 37.0530(B)).**

Staff: Notice of the application was sent to the appropriate parties, as referenced by MCC 37.0530(B)). Notice as also sent to the Department of Land Conservation and Development Floodplain Coordinator and to the Federal Insurance Administration as required by MCC 29.629. Written comments were submitted to the County by Dennis Griffin, State Historic Preservation Office Lead Archaeologist. Mr. Griffin requested that all work cease immediately if any cultural material is discovered during construction activities (ORS 358.905 and ORS 97.740). No other written comments were submitted.

### **4.0 Lot of Record**

**4.1 MCC 36.3170 and 34.0005(L)(12) states, a Lot of Record, For the purposes of this district is a parcel, lot, or group thereof which when created and when reconfigured satisfied all applicable zoning and land division laws.**

Staff: All work will be occurring within the Stark Street public right-of-way and will not be occurring on a specific property of record.

### **5.0 Ownership Authorization**

**5.1 Proof of record ownership of the tract and the representative's authorization must be demonstrated to process any land use application (MCC 37.0590(A) & (C)).**

Staff: A signature provided by Mike Phillips, Acting County Engineer, is provided on the General application form presented as Exhibit A3. This signature provides adequate authorization for the County to process this request.

### **6.0 Dimensional Requirements**

**6.1 The maximum structure height in the Rural Residential District is 35-feet (MCC 36.33155(C)).**

Staff: No new structures are proposed as this is essentially a repair project previously described in detail. The only new structure proposed involves the installation of a 2-foot, 6-inch tall metal railing that will be mounted on top of a 2-foot concrete wall to better facilitate pedestrian traffic. No structures will be built exceeding the 35-foot height requirement.

## **7.0 Hillside Development Permit**

- 7.1 **An application for development subject to the requirements of this subdistrict shall include the following (36.5515(A)): A map showing the property line locations, roads and driveways, existing structures, trees with 8-inch or greater caliper or an outline of wooded areas, watercourses and include the location of the proposed development(s) and trees proposed for removal.**

- 7.2 **An estimate of depths and the extent and location of all proposed cuts and fills (MCC 36.5515(B)).**

*Applicant: "We may cut up to two feet deep along the south side of the road for widening...The correct excavation number is 350 cubic yards. The location for disposal of the spoils is unknown at this time. The contractor will be required to submit the disposal location for approval. The most likely disposal location will be the rock quarry from where the base rock is purchased."*

Staff: The applicant has demonstrated on the site plan where cutting and filling will occur.

- 7.3 **The location of planned and existing sanitary drainfields and drywells (MCC 36.5515(C)).**

*Applicant: "No sanitary drain fields or drywells exist within the project area."*

- 7.4 **Narrative, map or plan information necessary to demonstrate compliance with MCC 36.5520 (A). The application shall provide applicable supplemental reports, certifications, or plans relative to: engineering, soil characteristics, stormwater drainage, stream protection, erosion control, and/or replanting (MCC 36.5515(D)).**

Staff: Narrative descriptions of the geotechnical recommendations are presented as Exhibit A4.

- 7.5 **A Hillside Development permit may be approved by the Director only after the applicant provides (MCC 36.5515(E)(1)): Additional topographic information showing that the proposed development to be on land with average slopes less than 25 percent, and located more than 200 feet from a known landslide, and that no cuts or fills in excess of 6 feet in depth are planned. High groundwater conditions shall be assumed unless documentation is available, demonstrating otherwise; or**

Staff: See response below.

- 7.6 **A geological report prepared by a Certified Engineering Geologist or Geotechnical Engineer certifying that the site is suitable for the proposed development (MCC 36.5515(E)(2)); or,**

*Applicant: "HDP Form 1 indicating the site is suitable, signed and stamped by Timothy J. Pfeiffer, PE."*

Staff: The applicant has submitted the geotechnical reconnaissance HDP Form-1 form prepared by a Professional Engineer rather than a geological report prepared by a Certified Engineering Geologist. The materials submitted by the applicant meet this standard as the HDP Form-1 clearly indicates the site is suitable for development.

- 7.7 **An HDP Form– 1 completed, signed and certified by a Certified Engineering Geologist or Geotechnical Engineer with his/her stamp and signature affixed indicating that the site is suitable for the proposed development (MCC 36.5515(E)(1)).**

*Applicant: “HDP Form 1 indicating the site is suitable, signed and stamped by Timothy J. Pfeiffer, PE...The results of the Geotechnical study are shown on plan B0002, which includes the boring log.”*

Staff: See Staff response below.

- 7.8 **If the HDP Form– 1 indicates a need for further investigation, or if the Director requires further study based upon information contained in the HDP Form– 1, a geotechnical report as specified by the Director shall be prepared and submitted (MCC 36.5515(E)(1)(a)).**

Staff: The HDP Form-1, stamped by Timothy J. Pfeiffer, P.E., indicates no signs of slope instability were observed during the site visit and that his opinion was that the proposed construction would not create stability problems. The HDP Form-1 does not recommend further investigation as subsurface investigation had already occurred. The results of the subsurface boring (BH-1) is presented within Exhibit A6.

- 7.9 **A geotechnical investigation in preparation of a report required by MCC 36.5515 (E) (3) (a) shall be conducted at the applicant’s expense by a Certified Engineering Geologist or Geotechnical Engineer. The report shall include specific investigations required by the Director and recommendations for any further work or changes in proposed work which may be necessary to ensure reasonable safety from earth movement hazards (MCC 36.5515(F)(1)).**

Staff: The HDP Form-1 reconnaissance study references a subsurface investigation that had been performed to address the stability of the existing slopes and retaining wall (see page 4, Exhibit A5 for reference). A geotechnical study was performed by Foundation Engineering Inc and the resulting subsurface Test Boring (BH-1) log is presented in Exhibit A6. This information was used by the applicant, Randy Shannon, Professional Engineer, in the drafting of the narrative which outlines the appropriate methodology to be used to ensure reasonable safety from earth movement hazards. The narrative submitted by the applicant is presented as Exhibit A4.

- 7.10 **Any development related manipulation of the site prior to issuance of a permit shall be subject to corrections as recommended by the Geotechnical Report to ensure safety of the proposed development (MCC 36.5515(F)(2)).**

Staff: Staff visited the site on September 16, 2004 to better understand how the proposal conforms to the existing topography. Signs of recent grading activities were not evident during the site visit suggesting the site has not been recently disturbed prior to the

issuance of a permit authorizing construction. The work area appears to be in compliance with this criterion.

- 7.11 **Observation of work required by an approved Geotechnical Report shall be conducted by a Certified Engineering Geologist or Geotechnical Engineer at the applicant's expense; the geologist's or engineer's name shall be submitted to the Director prior to issuance of the Permit (MCC 36.5515(F)(3)).**

Staff: A condition of this approval is that either a Certified Engineering Geologist or Professional Engineer shall observe the site and verify in writing that the completed project complies with the March 17<sup>th</sup>, 2003 geotechnical recommendations presented by Timothy Pfeiffer, P.E. (MCC 36.5515(F)(3)), (Exhibit A5). This condition will reasonably assure the geotechnical recommendations provided by Timothy Pfeiffer will be achieved.

- 7.12 **The Director, at the applicant's expense, may require an evaluation of HDP Form-1 or the Geotechnical Report by another Certified Engineering Geologist or Geotechnical Engineer (MCC 36.5515(F)(4)).**

Staff: A secondary technical review is not required as the geotechnical reconnaissance report prepared by Timothy Pfeiffer, P.E., adequately describes current site conditions, geotechnical constraints and provides clear recommendations.

- 7.13 **Development plans shall be subject to and consistent with the Design Standards for Grading and Erosion Control in MCC 36.5520 (A) through (D). Conditions of approval may be imposed to assure the design meets those standards (MCC 36.5515(G)).**

Staff: Noted.

- 7.14 **Fill materials, compaction methods and density specifications shall be indicated. Fill areas intended to support structures shall be identified on the plan. The Director or delegate may require additional studies or information or work regarding fill materials and compaction (MCC 36.5520(A)(1)(a));**

*Applicant: "There are no fill areas which apply to this question. However, Drawing No. B0001 indicates that the contractor shall support the bottom mat of reinforcing steel from the forms with pre-cast mortar blocks at 36 inch maximum centers each way. And the contractor is required to support the top mat of reinforcing steel from the bottom mat of reinforcing steel with reinforcing bar supports by Dayton Superior Co. or an approved equal at 36 inch maximum centers."*

Staff: The applicant has detailed the required information above. Compacted lifts of soil "fill" will not be used for this project although pre-cast mortar blocks will be used to support reinforcing steel. Shotcrete ground armoring will be used adjacent to the bridge footings to mitigate a chronic erosion problem around the abutments. The shotcrete will not support a structure and is not considered fill in light of this standard.

- 7.15 **Cut and fill slopes shall not be steeper than 3:1 unless a geological and/or engineering analysis certifies that steep slopes are safe and erosion control measures are specified (MCC 36.5520(A)(1)(b));**

*Applicant: "There are no new cut and fill slopes as demonstrated in the attached project plans. A 30 foot high retaining wall currently exists, which supports existing steep slopes above Stark Street just south of this project site. A vertical cliff exists between the road and the Sandy River. Erosion control measures will be taken as prescribed by the "Erosion Prevention and Sediment Control Plans Technical Guidance Handbook" and are further described in this application."*

Staff: Cutting or filling will not occur on slopes steeper than 3(H):1(V).

- 7.16 **Cuts and fills shall not endanger or disturb adjoining property (MCC 36.5520(A)(1)(c));**

*Applicant: "No cuts and fills will endanger or disturb adjoining property as demonstrated in the attached project plans, and required of the contractor, and enforced by Multnomah County in accordance with MCC and 2002 Oregon Standard Specifications for Construction, Section 00170.80(a), (b), and (c)."*

Staff: The applicant, a registered Professional Engineer, has verified the proposed work will not impact adjoining property. The widening of Stark Street will involve the vast majority of soil disturbance, estimated at 350-cubic yards. All excess soil will be immediately trucked to an approved receiving facility and therefore will not be stored on site. A Professional Engineer has evaluated the impacts on adjoining property due to the proposed construction within the Hillside Development Permit Form-1 reconnaissance study (Exhibit A5). On page 2, it states that the proposed earthwork is not anticipated to cause potential stability problems for the subject and/or adjacent properties.

A Professional Engineer with David Evans and Associates, has also verified that lining the existing culvert under the viaduct will not impact the conveyance of the system during flood and in fact will result in 64 percent increase in capacity, mainly attributed to an alteration to the Manning's "n" roughness value from an existing value of 0.024 to a proposed value of 0.011 (Exhibit A7).

In conclusion, staff finds that adjoining properties will not be subjected to instability risks, a high erosion risk or risk of flooding. In fact, it appears the work will increase the stability of the viaduct and the conveyance capacity of the flow passing under viaduct will be increased which will reduce the flood potential of adjacent properties downhill (north) of the project site.

- 7.17 **The proposed drainage system shall have adequate capacity to bypass through the development the existing upstream flow from a storm of 10-year design frequency (MCC 36.5520(A)(1)(d));**

*Applicant: "The existing 48 inch CMP culvert transports flow under the viaduct, and has no history of flooding or of being under-capacity. It is proposed to line the existing culvert with a solid wall polyethylene liner which will result in a 64 percent increase in capacity. Since there are no existing drainage insufficiencies, the modified culvert is*

*adequate. SEE ATTACHED David Evans and Associates' Memorandum regarding drainage calculations...I (the applicant) have reviewed the calculations provided by DEA and find: The flood-carrying capacity for the altered or relocated portion of the watercourse will be maintained; The area subject to inundation by the base flood discharge will not be increased; The alteration or relocation will cause no measurable increase in base flood levels."*

Staff: A Professional Engineer with David Evans and Associates (Richard Attanasio) has evaluated the alterations to the conveyance system passing under the viaduct and has verified that lining the culvert as proposed will not impact flow under the viaduct, that the existing culvert has no history of flooding and that the proposed changes will result in an estimated capacity increase (in cubic feet per second) of 64 percent. The applicant (Randall Shannon, a Professional Engineer) has verified the proposal will not impact the conveyance capacity or area of inundation of the storm flows. This criterion is met.

- 7.18 Fills shall not encroach on natural watercourses or constructed channels unless measures are approved which will adequately handle the displaced streamflow for a storm of 10-year design frequency (MCC 36.5520(A)(1)(e));**

*Applicant: "No fills will encroach on natural watercourses or constructed channels as demonstrated in the attached plans, and required by Multnomah County in accordance with MCC and 2002 Oregon Standard Specifications for Construction...I (the applicant) have reviewed the calculations provided by DEA and find: The flood-carrying capacity for the altered or relocated portion of the watercourse will be maintained; The area subject to inundation by the base flood discharge will not be increased; The alteration or relocation will cause no measurable increase in base flood levels."*

Staff: Fill will not encroach on a natural watercourse or channel.

- 7.19 On sites within the Tualatin River Drainage Basin, erosion and stormwater control plans shall satisfy the requirements of OAR 340. Erosion and stormwater control plans shall be designed to perform as prescribed by the currently adopted edition of the "Erosion Prevention & Sediment Control Plans Technical Guidance Handbook (1994)" and the "City of Portland Stormwater Quality Facilities, A Design Guidance Manual (1995)". Land-disturbing activities within the Tualatin Basin shall provide a 100-foot undisturbed buffer from the top of the bank of a stream, or the ordinary high watermark (line of vegetation) of a water body, or within 100-feet of a wetland; unless a mitigation plan consistent with OAR 340 is approved for alterations within the buffer area (MCC 36.5520(A)(2)(a));**

Staff: The site is not located in the Tualatin River Drainage Basin but within the Sandy River Drainage Basin. This standard does not apply.

- 7.20 Stripping of vegetation, grading, or other soil disturbance shall be done in a manner which will minimize soil erosion, stabilize the soil as quickly as practicable, and expose the smallest practical area at any one time during construction (MCC 36.5520(A)(2)(b));**

*Applicant: "Supported silt fences- geotextile backed with wire mesh and check dams made from straw bale barriers with aggregate weirs, bio-filter bags, sand bags, or*

*triangular silt dikes are required and shown in the attached plan and profile. Multnomah County Inspectors will be on site, enforcing these standards. No visible sediment will be allowed to leave the project site.*

*In addition, the contractor will be required to follow 2002 Oregon Standard Specifications for Construction which includes Section 00280-Erosion and Sediment Control. Part of the requirements in 00280 include the submittal of an Erosion and Sediment Control Plan (ESCP) which must be submitted ten days before the pre-construction conference and approved by the Project Manager before construction commences. Extensive requirements for the ESCP are listed further on page 158 and 159 of the 2002 Oregon Standard Specifications for Construction. Multnomah County inspectors will be on site to monitor compliance at all times during construction.*

*All grading will be performed with all erosion control measures in place in order to minimize soil erosion. The existing vertical cliff below the bridge will be reinforced with reinforced shotcrete as required by ODOT and Multnomah County Bridge Engineering sections, please see drawing No. B0001. Any exposed soil will be stabilized as quickly as practicable, and any soil surfaces exposed will be kept to a minimum at any one time during construction. The contractor will be required to monitor on site daily rainfall using an approved gauge, or otherwise as submitted in the Erosion and Sediment Control Plan, and will report regarding rainfall and effective erosion control measures at regular intervals using the required ODOT Erosion Control Report Form. In addition, it is specified in plan and profile sheet 4 that the contractor is required to keep all construction debris within the work zone. Multnomah County Inspectors will be on site, enforcing these requirements, in accordance with MCC and the 2002 Oregon Standard Specifications for Construction, Section 00280.*

*The hand-laid basalt channel is an existing feature to be protected. The down-hill stream channel consists of solid bare basalt with no erosion potential, shortly followed by a long drop to the Sandy River. During construction the area will be protected by straw waddle bags around the base of the structure. After construction the area will be protected by shotcreting the areas under the structure that cannot grow vegetation. The area above the bridge will be protected by seeding and matting all disturbed areas. Inlet protection will be installed to trap any sediment. There are no known erosion control measures that can be installed on bare solid basalt...All areas of disturbed ground are to be seeded and mulched. If the slope is lower than 1 to 1.5 hand cast straw mulch is allowed. If steeper, hydro mulch with a tackifier compound is specified."*

Staff: The majority of the soil disturbance will occur along the north side of Stark Street in the project area, estimated at 350 cubic yards of cutting (Exhibit A6 and A4). Excess material will be immediately trucked to an approved receiving facility and will not be stored on-site or used as fill. Less than 5 cubic yards of earth disturbance is estimated to occur around the viaduct footings in association with the foundation rehabilitation.

Soil will only be disturbed in the footprint of the widened section of road and around the bridge footings in an attempt to minimize the amount of area disturbed. An existing erosion problem under the viaduct will be cured with a shotcrete application and riprap will be hand lain under the culvert discharge at the base of the viaduct to minimize erosive scour. Bio-bags will be installed within the drainage ditch north of Stark Street to act as check dams and installed at the base of the shotcrete for erosion control and will

be used around the culvert inlet to control sediment entering the culvert. Staff finds all soil disturbed by construction will quickly be covered by the widened road and shotcrete application under the viaduct. The applicant has proposed construction in a way that minimizes the amount of disturbed soil exposed to erosive forces on the project site.

**7.21 Development Plans shall minimize cut or fill operations and ensure conformity with topography so as to create the least erosion potential and adequately accommodate the volume and velocity of surface runoff (MCC 36.5520(A)(2)(c));**

*Applicant: "The project's purpose is to create the least erosion potential and to accommodate the volume and velocity of water for the improvement of this failing structure in Multnomah County right-of-way and to ensure the removal of potential harm to properties adjacent. The design is such that the least erosion potential will be ensured. The volume and velocity of surface runoff will be adequately accommodated during construction through the use of the existing 48 inch CMP culvert which transports flow under the viaduct, and has no history of flooding or of being under-capacity. SEE ATTACHED David Evans and Associates' Memorandum regarding drainage calculations."*

Staff: Roughly 350-cubic yards of cutting will occur on the uphill (south) side of Stark Street in order to widen the road. This disturbance is required to create an acceptable road base and is limited in size to accommodate only the widened road and relocated ditch. Alternatively, widening the downhill (north) side of Stark Street would require installation of retaining walls and the importation of hundreds if not thousands of cubic yards of fill. The applicant has proposed the ground disturbance in a way that minimizes alterations to the existing topography as the applicant will be widening the flatter side of the road.

**7.22 Temporary vegetation and/or mulching shall be used to protect exposed critical areas during development (MCC 36.5520(A)(2)(d));**

*Applicant: "All areas of disturbed ground are to be seeded and mulched. If the slope is lower than 1 to 1.5 hand cast straw mulch is allowed. If steeper, hydro mulch with a tackifier compound is specified."*

Staff: The majority of disturbed areas will be covered with either asphalt road or shotcrete application. Vegetation can not be installed under the viaduct as this area never receives rain and is void of vegetation today. This is the reason a shotcrete application was selected for permanent erosion control. The applicant has stated that any disturbed areas that can be revegetated will be mulched and revegetated with grass – an appropriate filtering vegetation for roadside ditches and slopes.

**7.23 Whenever feasible, natural vegetation shall be retained, protected, and supplemented (MCC 36.5520(A)(2)(e));**

*Applicant: "Natural vegetation will experience minimal impact with this project. While we ordinarily require supplementation of native vegetation in addition to the regular retainage and protection, supplementation will not apply in this particular case, because we will cause only minimal impact to vegetation, only removing existing bridge structure from the right-of-way and replacing with new bridge deck."*

Staff: The existing vegetation impacted by this project includes roadside grasses and weeds between the road and cliff south of the road. No significant wildlife habitat will be disturbed to facilitate this project. Since the work area is contained to the footprint of the road and viaduct footings, the project could not be designed to further minimize impacts to vegetation.

- 7.24 **A 100-foot undisturbed buffer of natural vegetation shall be retained from the top of the bank of a stream, or from the ordinary high watermark (line of vegetation) of a water body, or within 100-feet of a wetland (MCC 36.5520(A)(2)(e)(1));**

Staff: Work will be occurring within 100-feet of the Sandy River (see response below).

- 7.25 **The buffer required in 1. may only be disturbed upon the approval of a mitigation plan which utilizes erosion and stormwater control features designed to perform as effectively as those prescribed in the currently adopted edition of the "Erosion Prevention & Sediment Control Plans Technical Guidance Handbook (1994)" and the "City of Portland Stormwater Quality Facilities, A Design Guidance Manual (1995)" and which is consistent with attaining equivalent surface water quality standards as those established for the Tualatin River Drainage Basin in OAR 340 (MCC 36.5520(A)(2)(e)(2));**

*Applicant: "There is no vegetation that will be disturbed below the road because the area under the bridge has no vegetation due to the rain shadow. The roadway widening within 100 feet of the stream will cover an existing graveled area and reconstruct an existing ditch line. There is minimal vegetation in this ditch line and it is non-native. This area is regularly sprayed to keep the vegetation under control. The ditch line within 100 feet of the stream high-water mark is from station 24+25 to 24+75 and from station 26+15 to 26+50...The area under the existing structure will be covered with shotcrete as shown on plan B0002. This area is already unraveling because it does not support vegetation due to the rain shadow of the structure."*

Staff: Work will be occurring within 100-feet of the Sandy River. The proposed best management practices include filtering bio bags and check dams to be utilized to control flow into the work area and to help filter sediment. All disturbed areas will either be covered in impervious surface (asphalt or shotcrete) or will be mulched and seeded within 14-days after construction activity ceases. These best management practices have been found to be consistent with the recommendations outlined in the City of Portland's "Erosion Prevention & Sediment Control Plans Technical Guidance Handbook (1994)" and the "City of Portland Storm water Quality Facilities, A Design Guidance Manual (1995)".

- 7.26 **Permanent plantings and any required structural erosion control and drainage measures shall be installed as soon as practical (MCC 36.5520(A)(2)(f));**

*Applicant: "The erosion control measures shown will be installed before the work phase requiring the protection is started. ...Structural erosion control devices will be installed immediately upon commencement of construction and are an integral part of this project as required by ODOT in accordance with Standard Specifications and the Multnomah County Bridge Department."*

Staff: Permanent plantings are not proposed or required. Drainage measures such as the culvert rehabilitation will occur during construction.

- 7.27 Provisions shall be made to effectively accommodate increased runoff caused by altered soil and surface conditions during and after development. The rate of surface water runoff shall be structurally retarded where necessary (MCC 36.5520(A)(2)(g));**

*Applicant: "Water flow will be retarded in the ditch line through the use of check dams, made from straw bales with aggregate weirs, bio-filter bags, sand bags or triangular silt dikes. Please see attached plan and profile sheet 4 for illustrations...The erosion control measures shown will be installed before the work phase requiring the protection is started. The soil disturbance will be the excavation for the new inlets, the bridge footings, and the roadway widening. The anticipated sequence for the roadway widening is the installation of the inlet protection and a check dam below the roadway widening area. The contractor would excavate for the new roadway widening and then install the check dams along the new ditch line...The new inlet structure excavation will be drained by percolation during construction and will only remain open for a short time. Consequently, there will be no potential for erosion due to the inlet structure excavation. The structural excavation will also be primarily drained by percolation. In addition, straw waddles will be used to protect the area under the bridge."*

Staff: The applicant has proposed installing hand laid basalt channel paving at the culvert outfall below the viaduct to reduce runoff velocities. Check dams will be used to retard runoff passing through the development site. This will help reduce flow velocities, minimizing the ability for water to detach, suspend and transport sediment as eloquently demonstrated by the infamous Stokos' Law of Settling, commonly referenced in hydraulic literature.

- 7.28 Sediment in the runoff water shall be trapped by use of debris basins, silt traps, or other measures until the disturbed area is stabilized (MCC 36.5520(A)(2)(h));**

*Applicant: "We will prevent sediment from being exposed to water. Should sediment be present in runoff water, it will be trapped through the use of check dams made from straw bales with aggregate weirs, bio-filter bags, sand bags or triangular silt dikes, as well as supported and reinforced silt fencing. Please see attached plan and profile sheet 4 for illustrations. The contractor will submit a detailed Erosion and Sediment Control Plan (ESCP) which will further describe how all sediment will be trapped, as required in Section 00280, 2002 Oregon Standard Specifications for Construction."*

Staff: Larger grained sediment will be forced out of solution by the use of check dams which slow flow to the point of deposition (see Stokos' Law of Settling). Straw bales will be used to filter turbid runoff at the culvert inlet located up gradient of the viaduct.

- 7.29 Provisions shall be made to prevent surface water from damaging the cut face of excavations or the sloping surface of fills by installation of temporary or permanent drainage across or above such areas, or by other suitable stabilization measures such as mulching or seeding (MCC 36.5520(A)(2)(i));**

*Applicant: "Due to the nature of this project, no exposed cuts or fills will be incorporated, therefore, no water will damage cuts and fills. In addition, check dams made from sand bags, straw bales with aggregate weirs, bio filter bags or triangular silt bags will be utilized. The existing 48 inch CMP culvert will accommodate the existing flow."*

Staff: No significant cut faces are proposed. A two foot tall cut will be required to facilitate the road widening portion of the project. A two foot tall cut does not pose a significant erosion or stability risk. An existing unvegetated slope in the rain shadow of the viaduct will be shotcreted to avoid surface water from further damaging the slope around the viaduct footings.

**7.30 All drainage provisions shall be designed to adequately carry existing and potential surface runoff to suitable drainageways such as storm drains, natural watercourses, drainage swales, or an approved drywell system (MCC 36.5520(A)(2)(j));**

*Applicant: "The volume and velocity of runoff will be adequately accommodated during and after construction through the use of the existing 48 inch CMP culvert which transports flow under the viaduct, and has no history of flooding or of being under-capacity. SEE ATTACHED David Evans and Associates' Memorandum regarding drainage calculations. Erosion control measures, mentioned in (i) above will check any additional runoff... While lining the existing culvert the water may be diverted by either pumping it over the road or by installing a small line down the existing culvert. The exact method of controlling the water will be determined by the contractor's construction practices. It is anticipated that the culvert lining will require a mid-summer work window during low flow. I have enclosed ODOT's standard drawings for a temporary diversion."*

Staff: A Professional Engineer with David Evans and Associates (Richard Attanasio) has evaluated the alterations to the conveyance system passing under the viaduct and has verified that lining the culvert will not impact the flows under the viaduct, that the existing culvert has no history of flooding and that the proposed changes will result in an estimated capacity increase of 64 percent. The overall drainage flow pattern through the project area will not be impacted (i.e. re-directed or measurably changed) as a result of this project.

**7.31 Where drainage swales are used to divert surface waters, they shall be vegetated or protected as required to minimize potential erosion (MCC 36.5520(A)(2)(k));**

*Applicant: "Ditches used to divert surface waters will be protected via check dams as shown in plan and profile sheet no. 4., and further discussed in the Erosion and Sediment Control Plan (ESCP) required to be approved before construction commences."*

Staff: The roadside ditch north of Stark Street will be lined with check dams to minimize erosion potential during construction.

**7.32 Erosion and sediment control devices shall be required where necessary to prevent polluting discharges from occurring. Control devices and measures which may be**

**required include, but are not limited to: 1. Energy absorbing devices to reduce runoff water velocity (MCC 36.5520(A)(2)(l)(1));**

*Applicant: “We are requiring energy absorbing devices including aggregate check dams, straw bales with aggregate weirs, sand bags, or triangular silt dikes to be placed as illustrated on plan and profile sheet no. 4, and in accordance with the 2002 Oregon Standard Specifications for Construction, Section 00280.”*

Staff: Energy absorbing devices such as check dams and riprap have been proposed and have been discussed in detail within previous findings. A condition of this approval is that all best management practices proposed be installed prior to construction and maintained throughout construction.

- 7.33 Sedimentation controls such as sediment or debris basins. Any trapped materials shall be removed to an approved disposal site on an approved schedule (MCC 36.5520(A)(2)(l)(2));**

*Applicant: “Any trapped materials will be removed and disposed of at an approved disposal site on a schedule as proposed by the contractor and approved by the project manager. Multnomah County Inspectors will be on site to enforce the requirements of Multnomah County Code and the 2002 Oregon Standard Specifications for Construction.”*

Staff: A debris basin has not been proposed.

- 7.34 Dispersal of water runoff from developed areas over large undisturbed areas (MCC 36.5520(A)(2)(l)(3)).**

Staff: The ultimate discharge points of storm water flow through the site will not be altered, although the roadside ditch north of Stark Street will be relocated northerly roughly 10 to 15-feet. The overall storm water dispersal patterns will not be altered.

- 7.35 Disposed spoil material or stockpiled topsoil shall be prevented from eroding into streams or drainageways by applying mulch or other protective covering; or by location at a sufficient distance from streams or drainageways; or by other sediment reduction measures (MCC 36.5520(A)(2)(m));**

*Applicant: “No topsoil will be stockpiled in this project. We will sawcut existing asphalt, using the required sediment vacuum, and material to be disposed of will be placed in trucks immediately and hauled offsite to an approved location, unless otherwise noted in the pre-construction conference, at which point detailed plans must be approved by Multnomah County. Multnomah County Inspectors will monitor the hauling and dumping practices of waste materials as required and in accordance with the Oregon Standard Specifications for Construction (2002) Section 00330.40 (5), and subsection 00290.20(i).”*

Staff: Soil will not be stockpiled on-site as described by the applicant above. This will significantly reduce the overall erosion potential of the project.

- 7.36 **Such non-erosion pollution associated with construction such as pesticides, fertilizers, petrochemicals, solid wastes, construction chemicals, or wastewaters shall be prevented from leaving the construction site through proper handling, disposal, continuous site monitoring and clean-up activities (MCC 36.5520(A)(2)(n)).**

*Applicant: "No pesticides or fertilizers will be used on this project. Contractors are required to follow Oregon Standard Specifications for Construction Section 00290.30 Pollution Control which includes stringent minimum required measures to be taken, and includes the submittal of a Pollution Control Plan (PCP) which must be submitted for approval 10 days before the preconstruction conference. A copy of the approved PCP must be maintained on the construction site at all times during construction activities, readily available to employees and inspectors. The full requirements include, among many others, a map showing the locations of proposed hazardous substance storage, spill response equipment, communications equipment, fire suppression equipment and the on-site copy of the PCP. Further information regarding the PCP can be found on page 181, 2002 Oregon Standard Specifications for Construction."*

Staff: The use of the chemicals and wastes listed in MCC 36.5520(A)(2)(n) are not proposed.

- 7.37 **On sites within the Balch Creek Drainage Basin, erosion and stormwater control features shall be designed to perform as effectively as those prescribed in the "Erosion Prevention & Sediment Control Plans Technical Guidance Handbook (1994)". All land disturbing activities within the basin shall be confined to the period between May first and October first of any year. All permanent vegetation or a winter cover crop shall be seeded or planted by October first the same year the development was begun; all soil not covered by buildings or other impervious surfaces must be completely vegetated by December first the same year the development was begun (MCC 36.5520(A)(2)(o)).**

Staff: The project site is not located within the Balch Creek Drainage Basin.

## **Conclusion**

Considering the findings and other information provided herein, this application, as conditioned, satisfies applicable Multnomah County Zoning Ordinance requirements. The viaduct rehabilitation project indicated in the plans approved by this decision, as further indicated in the **Scope of Approval** section of this report.

## **Exhibits**

All materials submitted by the applicant, prepared by County staff, or provided by public agencies or members of the general public relating to this request are hereby adopted as exhibits hereto and may be found as part of the permanent record of this application. Exhibits referenced herein are enclosed, and a brief description of each is listed below:

<u>Label</u>	<u>Pages</u>	<u>Description</u>
A1		Vicinity Maps

A2	2002 Aerial Photo
A3	General Application Form
A4	Narrative Responses
A5	HDP Form-1 Reconnaissance Survey
A6	Construction Plans
A7	Storm water Analysis – David Evans and Associates, Inc.