

December 6, 2022

Item Summary

Consideration of a floodplain development application to complete improvements in Horn Creek to establish a natural channel and improve flows in the creek by eliminating a culvert at risk of failure. The improvements are within the Special Flood Hazard Area (SFHA) and regulatory floodway for Horn Creek. **Applicant:** City of Central Point; **Agent:** RH2 Engineering

Staff Source

Justin Gindlesperger, CFM, Community Planner II

Background

There are seven (7) streams that flow through the City of Central Point. Horn Creek is a small tributary to Jackson Creek located in the southwestern portion of the City. There is a 100-ft section of Horn Creek that flows through a private culvert (Attachment "A"). The City recently learned that the culvert is at risk of failure and will increase flood risk to surrounding property owners. At this time, the City is helping explore options to address this recently identified flood risk. One potential solution is to plug the culvert and establish a channel connection via an existing bypass channel immediately west of the culvert. To accomplish this, work will need to be done within a regulatory floodway and floodplain for Horn Creek.

As a participating community in the National Flood Insurance Program (NFIP), the City requires that floodplain development activities be evaluated and permitted to minimize flood damages, promote safety and protect environmental resources. In accordance with CPMC 8.24.090, the Floodplain Development permit is subject to Type III (quasi-judicial) procedures set forth in CPMC 17.05.400. In rendering a decision on the application, the Planning Commission must consider the criteria in CPMC 8.24.200 relative to floodway development. At the June 7, 2022 meeting, staff will provide a presentation on the application and its conformance with the applicable criteria needed to restore the stream channel conditions.

Project Description:

The project is within the SFHA and regulatory floodway of Horn Creek and proposes to establish a natural creek channel in an existing bypass channel within the banks of the creek and abandon the existing culvert. The culvert will remain in place, but will be plugged on both ends to prevent flows from entering. Work within the channel includes widening the areas at the north and south ends of the culvert to establish a riparian bench, preventing standing water in low flow conditions and sizing the channel to provide capacity in high flow scenarios.

In accordance with CPMC 8.24.200(A), a No-Rise certification is required to evaluate the existing flood conditions before a project and the proposed flood conditions following the completion of the project. According to the No-Rise documentation, the elimination of the culvert and establishing a natural channel within Horn Creek improves flows within the channel resulting in a decrease in flood elevations and provides fish passage through the project area, where the culvert and a diversion weir currently prevent passage (Attachment "B"). Since construction of the project does not result in an increase to flood elevations, the documentation is consistent with the City's no-rise standard.

Issues

There are no issues related to this application.

Findings of Fact & Conclusions of Law

The proposed floodplain development within Horn Creek has been evaluated against the applicable Flood Damage Prevention Criteria set forth in CPMC 8.24 and found to comply as evidenced in the Applicant's No-Rise documentation (Attachment "B") and the Planning Department's Supplemental Findings (Attachment "C").

Conditions of Approval

No conditions of approval are recommended.

Attachments

Attachment "A" – Floodplain Development Project Location Map

Attachment "B" – No-Rise Analysis (Note: Appendices are included in the record and available for review upon request)

Attachment "C" – Planning Division Findings of Fact and Conclusions of Law

Attachment "D" – Floodplain Development Application, dated 04/07/2022

Attachment "E" – Resolution No. 900

Action

Open a public hearing and consider the proposed Floodplain Development application and 1) approve; 2) approve with revisions; or 3) deny the application.

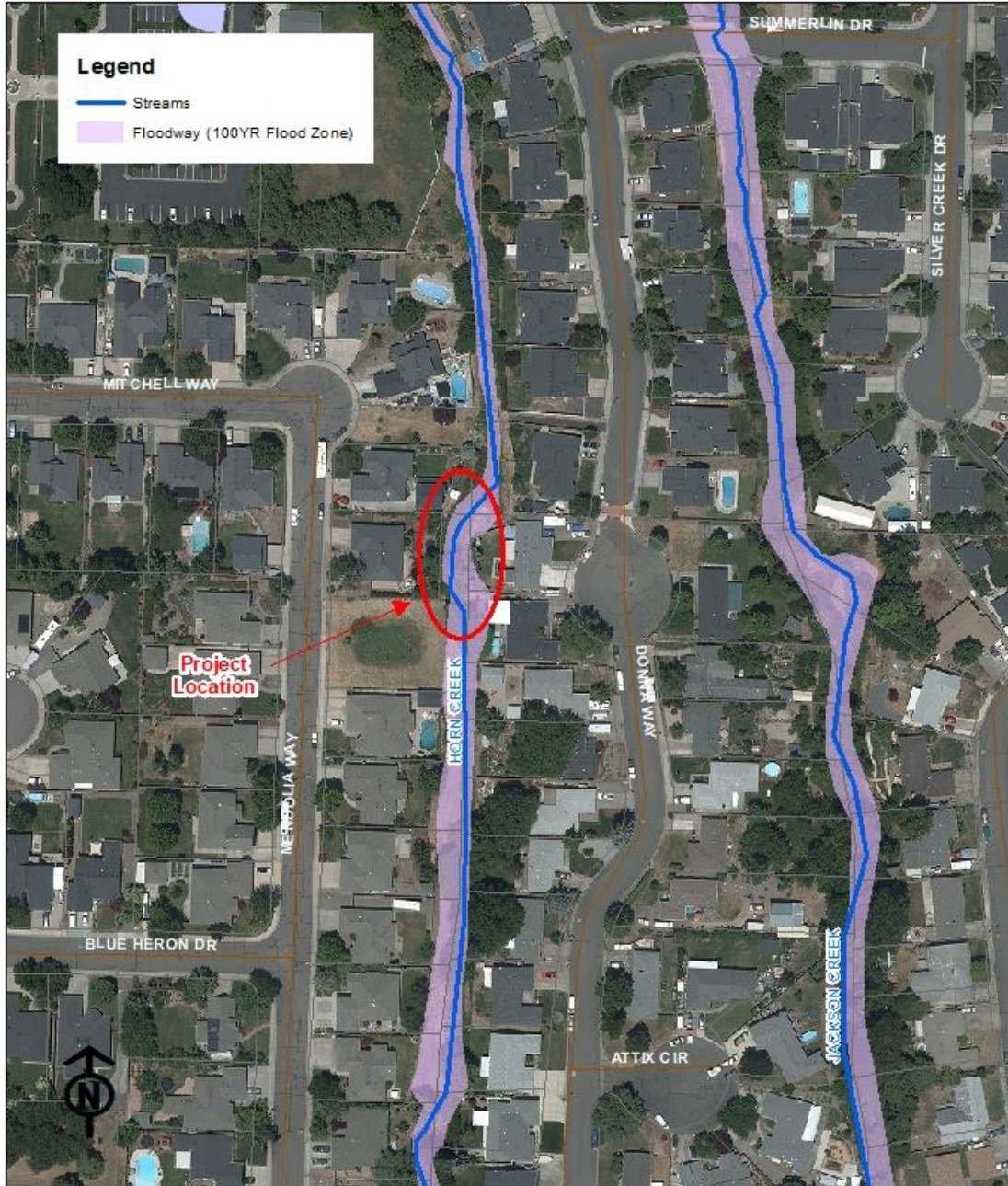
Recommendation

Approve Resolution No. 900, approving the floodplain development application to construct improvements within the regulatory floodway for Horn Creek.



Horn Creek Floodway Development & No-Rise Certification

Project Location Map
File No.: FP - 22001



Memorandum

To: Tyler Duncan, PE (RH2) and Matt Samitore (City of Central Point)

Date: February 1, 2022

From: Peter Brooks, PE

Proj. No. 2006857

Re: Horn Creek Culvert Abandonment – No-Rise Analysis

1 Project Background

Northwest Hydraulic Consultants Inc. (NHC) was retained by RH2 Engineering Inc. (RH2) to provide flood engineering services for the Horn Creek Culvert Abandonment Project (Project) being conducted for the City of Central Point (City). The Project plans to decommission a damaged 70-inch by 50-inch arch corrugated metal pipe (CMP) culvert that conveys Horn Creek through the backyard of private property on Donna Way (Figure 1). With decommissioning, Horn Creek will be conveyed through an existing high flow bypass channel that lies immediately west of the culvert. The project is located within a Federal Emergency Management Agency (FEMA) designated floodplain and regulatory floodway (FEMA, 2018); thus, a no-rise analysis is required. This memorandum documents the no-rise analysis conducted by NHC for the Project.

2 Duplicate Effective Model

FEMA requires that a no-rise analysis be based on a “duplicate effective” model (FEMA, 2013) and computed match effective base flood elevations (BFE) within 0.5 feet (FEMA, 2013). NHC developed the original HEC-RAS hydraulic models used for effective FEMA flood hazard mapping on Horn Creek (FEMA, 2018). The effective model was obtained directly from a Technical Support Data Notebook (TSDN) prepared by NHC and submitted to FEMA. Effective models and mapping reflect pre-2008 site conditions and were developed using a previous version of the U.S. Army Corps of Engineers’ HEC-RAS hydraulic modeling software (v.3.1.3). A duplicate effective model was tested using a newer version of HEC-RAS (v.6.1.0). Computed results were seen to match the effective BFEs within 0.5 feet, as stipulated by FEMA (2013).

In both the effective and duplicate effective model, the culvert and adjacent bypass channel were modeled as a single reach. A concrete and stop-log weir structure at the head of the bypass channel was included in the model. Manning roughness values (n) were defined as 0.045 in the channel and 0.08 in overbank areas. Results showed that flooding at the 100-year discharge (336 cfs) is confined within the channel along this section of the Horn Creek. As a result, the FEMA floodway is coincident with the 100-year (Zone AE) mapping in this area.

3 Corrected Effective Model

NHC developed a “corrected effective model” by incorporating newly collected survey of the project reach. Neathamer Surveying, Inc. (Neathamer) collected topographic and channel survey extending approximately 100 feet upstream and 80 feet downstream of the culvert. Survey data were developed into a Civil3D topographic surface provided to NHC by RH2 on November 23, 2021. With a higher resolution surface, new cross-sections were added and realigned to better reflect site conditions. Figure 1 shows effective (red) and revised (green) cross-section alignments.



Figure 1. Vicinity map showing topography collected by Neathamer relative to effective (red) and revised (green) cross-section alignments.

4 Proposed Condition Model

Proposed conditions were simulated by removing the CMP culvert and modifying the geometry of the bypass channel. Modifications included removal of the concrete and stop-log weir structure, grading the bed to follow the reach-average channel slope (0.8-percent), and maintaining 2H:1V sides slopes with minimum channel bottom width of four feet. The proposed grading results in a slightly wider and deeper channel. No changes were made to the Manning roughness values.

Results indicate that removal of the concrete and stop-log weir structure at the entrance to the by-pass channel and grading to make the slope more uniform compensates for the conveyance lost with removal (decommissioning) of the CMP culvert. Table 1 compares computed 100-year water surface elevations for existing and proposed conditions. Results indicate the Project will reduce nearby flood levels by as much as 0.5 feet, and tie into the effective profile further up and downstream.

Table 1. Comparison of computed water surface elevations (WSE) at HEC-RAS model cross-sections (shaded rows indicate project reach)

Cross-Section	Existing 100-year WSE (ft. NAVD 88)	Proposed 100-year WSE (ft. NAVD 88)	Difference [Proposed – Existing] (ft.)
2097.79	1278.94	1278.94	0.00
1415	1273.58	1273.12	-0.46
1361	1273.16	1272.76	-0.40
1331	1273.18	1272.62	-0.56
1222	1272.16	1271.93	-0.23
1165	1271.91	1271.87	-0.04
950.25	1270.73	1270.73	0.00

5 No-Build Scenario

The City requested that NHC evaluate impacts to upstream water surface elevations were the culvert structure to fail and the proposed bypass channel modifications *not* constructed. Findings indicate that water surface elevations immediately upstream of the CMP would increase by approximately one foot at flood frequencies ranging from the 10- to 500-year event.

6 Conclusion

The detailed hydraulic analysis document in this memorandum demonstrates that the Horn Creek Culvert Abandonment Project, if constructed as described above, will meet FEMA no-rise requirements. Because 100-year flooding will remain contained within the banks, revisions to effective flood hazard and floodway mapping are considered unwarranted. A signed, stamped no-rise certificate and other supporting materials specified by FEMA (2013) are attached to this memorandum.

7 References

Federal Emergency Management Agency (FEMA) 2018. Flood Insurance Study, Jackson County, Oregon and Unincorporated Areas. Revised January 19.

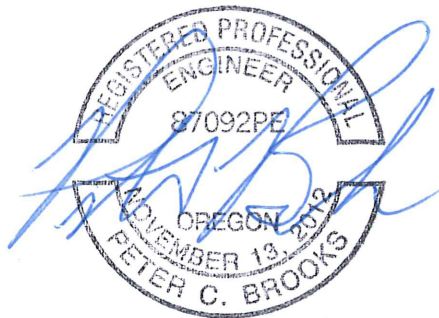
FEMA, 2013. Procedures for “No-Rise” Certifications for Proposed Developments in the Regulatory Floodway. Letter Report Prepared by FEMA Region X, Bothell, WA. October

DISCLAIMER

This document has been prepared by **Northwest Hydraulic Consultants Inc.** in accordance with generally accepted engineering practices and is intended for the exclusive use and benefit of the City of Central Point and their authorized representatives for specific application to the Horn Creek Culvert Abandonment Project in Central Point, Oregon. The contents of this document are not to be relied upon or used, in whole or in part, by or for the benefit of others without specific written authorization from **Northwest Hydraulic Consultants Inc.** No other warranty, expressed or implied, is made.

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Report prepared by:



Peter Brooks, PE
Principal

EXPIRES: 12/31/23

Peter
C.
Brooks

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Peter C. Brooks
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**FINDINGS OF FACT
AND CONCLUSIONS OF LAW
File No.: FP-22001**

**Consideration of a Floodplain Development Permit
to re-establish the natural channel of Horn Creek**

Applicant:)	Findings of Fact
City of Central Point)	and
Parks & Public Works Department)	Conclusion of Law
140 S. 3 rd Street)	
Central Point, OR 97502)	

**PART 1
INTRODUCTION**

The applicant proposes improvements within Horn Creek in order to establish a natural channel that improves flows in the creek and creates fish passage in low flow conditions by diverting flows into an existing bypass channel and abandoning an existing culvert that is exhibiting signs of potential failure.

The floodplain development permit is processed using Type III application procedures. Type III procedures set forth in Section 17.05.400 provides the basis for decisions upon standards and criteria in the development code and the comprehensive plan, when appropriate.

The project site is located in the Special Flood Hazard Area (SFHA) and floodway of Horn Creek. The standards and criteria for the proposal are set forth in CPMC 8.24, Flood Damage Prevention.

The following findings address each of the standards and criteria as applies to the proposed application for improvements within the regulatory floodway of Horn Creek.

**PART 2
FINDINGS & CONCLUSIONS**

Section 8.24.200 Development in Regulatory Floodways.

Located within areas of special flood hazard established in Section 8.24.070 are areas designated as regulatory floodways. Since the floodway is an extremely hazardous area due to the velocity of flood waters, which carry debris, potential projectiles, and erosion potential, development will not normally be allowed within the floodway except when it can be demonstrated the following provisions are satisfied:

- A. Except as provided in subsections E and F of this section, encroachments including fill, new construction, substantial improvements, and other development are prohibited unless certification by an Oregon registered professional civil engineer is provided demonstrating through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that such encroachment shall not result in any increase in flood levels during the occurrence of the base flood discharge;

Finding 8.24.200(A): *The applicant submitted a No Rise Certification as part of the application, certified by an Oregon registered professional civil engineer. Analysis of the proposed improvements examined the existing conditions in the project area compared to potential changes in flows and flood heights following the*

completion of the proposed improvements. The analysis is consistent with FEMA guidance¹ and demonstrates the project does not result in any increase to flood levels.

Conclusion 8.24.200(A): *Consistent.*

B. Provided that the conditions in subsection A of this section are met, the following additional provisions shall apply:

1. Floodplain development construction standards provided in Sections 8.24.250 and 8.24.260 are met;
2. Any fill allowed to be placed in the floodway shall be designed to be stable under conditions of flooding, including rapid rise and rapid drawdown of floodwaters, prolonged inundation, and flood-related erosion and scour;
3. No manufactured dwelling shall be placed in a floodway except in an existing mobile home park or an existing mobile home subdivision, as conditionally approved by the local administrator or designee in consideration of the conditions of Section 8.24.250(H);

Finding 8.24.200(B): *The project proposes to establish a natural creek channel in an existing bypass within the banks of Horn Creek and abandon an existing culvert. The culvert will remain in place, but will be plugged on both ends to prevent flows from entering. Work within the channel includes widening the areas at the north and south ends of the culvert to establish a riparian bench, preventing standing water in low flow conditions and sizing the channel to provide capacity in high flow scenarios.*

The project does not include structures, manufactured dwellings, utilities, tanks, fences or other development as defined in Sections 8.24.250 and 8.24.260.

Conclusion 8.24.200(B): *Not applicable.*

C. The following activities are prohibited in the regulatory floodway:

1. Fences and walls as provided in Sections 8.24.260(A)(1) and 17.57.030; and
2. Accessory structures as provided in Section 8.24.250(J);

Finding 8.24.200(C): *As noted above the project proposes to establish a natural channel in an existing bypass and to abandon an existing culvert. The project does not include fences, walls or accessory structures within the floodway.*

Conclusion 8.24.200(C): *Not applicable.*

D. In limited circumstances encroachments associated with functionally dependent uses (i.e., bridges, roads, culverts); historic structure reconstruction, restoration and rehabilitation; and stream restoration projects as provided in subsection F of this section and Section 8.24.270(B)(2)(f), that cause an increase to the BFE are allowed; provided, that the applicant demonstrate that no other alternative is available. In such circumstances, applicants shall obtain a CLOMR from FEMA before an encroachment, including fill, new construction, substantial improvement, and other development in the floodway, is permitted that will cause any increase in the BFE, unless the development causes a temporary encroachment and conditions

¹ FEMA, 2013. Procedures for “No-Rise” Certification for Proposed Developments in the Regulatory Floodway. Letter Report Prepared by FEMA Region X, Bothell, WA. October.

in subsection E of this section and the floodplain development construction standards provided in Sections 8.24.250 and 8.24.260 are satisfied;

Finding 8.24.200(D): *The elimination of the culvert and establishing a natural channel within Horn Creek improves flows within the channel and provides fish passage through the project area, including low flow conditions that were obstructed by the culvert and a diversion weir. As noted above, the application includes a No Rise Certification comparing existing conditions to potential changes in flows and flood heights following the proposed changes. The analysis demonstrates the proposed project does not aggravate flood conditions, resulting in a measurable decrease to the base flood elevations along Horn Creek.*

Conclusion 8.24.200(D): *Consistent.*

E. Temporary encroachments in the regulatory floodway for the purposes of capital improvement projects, including bridges and culverts, may be permitted if the encroachment results in an increase in flood levels during the occurrence of the base flood discharge; provided, that a conditional letter of map revisions (CLOMR) is applied for and approved by the Federal Insurance Administrator, and the requirements for such revision as established under Title 44 of the Code of Federal Regulations, Section 65.12 are fulfilled. Temporary encroachments shall comply with all other applicable flood hazard reduction provisions of this chapter and may be permitted when:

1. The project is limited as to duration with the days and dates that the structure or other development will be in the regulatory floodway, as specified in the floodplain development permit;
2. Accessory structures (i.e., construction trailers) are restricted from the regulatory floodway;
3. The project limits placement of equipment and material in the regulatory floodway to that which is absolutely necessary for the purposes of the project. Justification that demonstrates compliance with this requirement will be documented by the applicant in the required floodplain development permit application submittal documentation;
4. The applicant identifies any insurable structures affected by temporary changes to the area of special flood hazard or BFE and notifies owners of any increased risk of flooding. Documentation demonstrating compliance with this provision shall be provided to the city as part of the floodplain development application; and
5. The project applicant is provided with written notification that they may be liable for any flood damages resulting from the temporary encroachment;

Finding 8.24.200(E): *The proposed project is not a temporary encroachment into the floodway for a capital improvement project. Furthermore, the No Rise Certification demonstrates the project does not result in an increase to the base flood elevation or aggravate flood conditions.*

Conclusion 8.24.200(E): *Not applicable.*

F. Projects for stream habitat restoration may be permitted in the floodway, provided:

1. The project qualifies for a Department of the Army, Portland District Regional General Permit for Stream Habitat Restoration (NWP-2007-1023);
2. The project does not result in a potential rise in the flood elevation;

3. A conditional letter of map revisions (CLOMR) is applied for and approved by the Federal Insurance Administrator for any rise in the base flood levels, and the requirements for such revision as established under Title 44 of the Code of Federal Regulations, Section 65.12 are fulfilled; and
4. An agreement to monitor the project, correct problems and ensure that flood carrying capacity remains unchanged is included as part of the local floodplain development approval.



Finding 8.24.200(F): *By establishing a natural channel, bypassing the existing culvert and eliminating small structural barriers, the project will enhance fish passage along this reach of Horn Creek. As part of documentation and permitting, the applicant submitted a General Permit for stream habitat restoration from the Department of the Army. As noted above, the project does not result in an increase to base flood elevations nor aggravate flood conditions. Therefore, a conditional letter of map revision (CLOMR) is not required.*

Through the drainage channel maintenance program, in accordance with CPMC 8.28, the City ensures the maximum conveyance of water and protects and enhances the natural and beneficial uses of waterways within the City. The program includes annual inspections to ensure the channels are free from obstructions, identifies areas with excessive nonnative vegetation, erosion, and bank failures, and maintains records of overall drainage and channel conditions.

Conclusion 8.24.200(F): *Consistent.*

PART 3 SUMMARY CONCLUSION

As evidenced in findings and conclusions, the floodplain development permit for the proposed Horn Creek No Rise Certification is consistent with applicable standards and criteria in the Central Point Municipal Code as conditioned.

 Floodplain Development Permit Application		OFFICE USE ONLY <input type="checkbox"/> EC <input type="checkbox"/> No-Rise <input type="checkbox"/> CLOMR <input type="checkbox"/> Attachments <input type="checkbox"/> Approved <input type="checkbox"/> Denied <input type="checkbox"/> Subject to COA	
Instructions: Complete all <u>unhighlighted</u> sections of this application form to provide a complete understanding of your development proposal. Highlighted sections are for office use only. Please include attachments to help clarify your proposal. These may include a site plan, elevation drawings, detailed drawings and photographs. Refer to the application checklist for a complete list of required supporting documentation. Incomplete applications will not be accepted. Contact the Floodplain Coordinator at 541.664.7602, Ext. 244 if you have any questions.			
PROPERTY INFORMATION			
SITE ADDRESS: Mendolia Way		Map and Taxlot #:	
		FIRM Map & Panel No.: 41029C	
Flood Zone:	<input type="checkbox"/> Floodway	BFE: ft. NAVD88	Base Depth: ft. Minimum DFE:
OWNER & APPLICANT INFORMATION			
OWNER NAME: City of Central Point		APPLICANT/AGENT NAME: RH2 Engineering	
MAILING ADDRESS: 140 S 3rd St. Central Point, OR 97502		MAILING ADDRESS: 3553 Arrowhead Dr. Suite 200 Medford, OR 97504	
PHONE: (541) 664-3321	E-MAIL: matt.samitore@centralpointoregon.com	PHONE: (425) 471-8625	E-MAIL: tduncan@rh2.com
PROJECT DESCRIPTION			
Culvert removal/channel restoration			
STRUCTURAL DEVELOPMENT PROJECT INFORMATION			
Type of Use (Check one): <input type="checkbox"/> Residential N/A <input type="checkbox"/> Mixed Use (residential and non-residential) <input type="checkbox"/> Non-residential (commercial, accessory) <input type="checkbox"/> Elevated <input type="checkbox"/> Floodproofed (attach certification) <input type="checkbox"/> Manufactured Home <input type="checkbox"/> Located on individual lot <input type="checkbox"/> Located in manufactured home park		Type of Activity (Check one): <input type="checkbox"/> New structure N/A <input type="checkbox"/> Replacement of existing structure <input type="checkbox"/> Relocation of existing structure ¹ <input type="checkbox"/> Addition to existing structure ² <input type="checkbox"/> Remodel to existing structure ² <small>¹ Relocated structures are treated as new construction ² Additions and remodels that exceed 50% of the market value of the existing structure are a substantial improvement, which requires full compliance with Ch. 8.24. Improvements are counted cumulatively over a 10-year period.</small>	
		Additions & Remodel Information: 1. Year Built: N/A 2. Existing Bldg. Valuation: \$ Source: 3. Proposed Const. Cost: \$ Source: N/A 4(a). Addition Type: <input type="checkbox"/> Vertical N/A <input type="checkbox"/> Lateral 4(b). If Lateral Addition, is it structurally connected? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Other Structural Project Information: N/A 1. Elevation of lowest habitable floor: _____ feet, NAVD 88 2. Area of enclosed area below the BFE: _____ sq ft. 3. Number of proposed foundation flood vents: _____; Total Area: _____ sq ft			
NON-STRUCTURAL PROJECT INFORMATION			
Check all the proposed non-structural development activities associated with your project, as provided below.			
<input checked="" type="checkbox"/> Tree, vegetation and/or debris removal		<input checked="" type="checkbox"/> Bridge or culvert replacement	
<input checked="" type="checkbox"/> Excavation	Qty (cu yards): 285 CY	<input checked="" type="checkbox"/> Stream bank stabilization	
<input checked="" type="checkbox"/> Fill placement	Qty (cu. yards): 35 CY	<input checked="" type="checkbox"/> Watercourse alteration	
<input checked="" type="checkbox"/> Grading (attach project grading plan)		<input type="checkbox"/> Subdivision with improvements in the SFHA	
<input type="checkbox"/> Fence or wall construction		<input type="checkbox"/> Capital Improvement Project	
<input type="checkbox"/> Swimming pool installation		<input type="checkbox"/> Other:	
SIGNATURE			
By signing below, I agree to the terms and conditions of this permit and certify to the best of my knowledge the information contained in this application is complete, true and accurate.			
Tyler Duncan			04/07/2022
(PRINTED name)		(SIGNED name)	(Date)
(PRINTED name)		(SIGNED name)	(Date)

RESOLUTION NO. 900

A RESOLUTION OF THE PLANNING COMMISSION APPROVING A FLOODPLAIN DEVELOPMENT PERMIT/NO-RISE CERTIFICATE FOR CULVERT REMOVAL AND CHANNEL IMPROVEMENTS WITHIN THE HORN CREEK FLOODWAY

(File No: FP 22001)

WHEREAS, the applicant has submitted a Floodplain Development application and No-Rise Certification to complete improvements in the channel of Horn Creek to establish a natural channel and improve flows in the creek by eliminating an existing culvert.

WHEREAS, the No-Rise Certification was prepared in accordance with FEMA's Guidance for "No-Rise/No-Impact" Certification for Proposed Developments in Regulatory Floodways; and

WHEREAS, the No-Rise Certification confirms that the proposed improvements will not increase the base flood elevation or floodway profiles relative to the effective FEMA mapping; and

WHEREAS, on December 6, 2022, at a duly noticed public hearing, the City of Central Point Planning Commission considered the Applicant's request for floodplain development approval for the Horn Creek Floodplain Development Permit/No Rise Certification (the "Project"); and,

NOW, THEREFORE, BE IT RESOLVED that the City of Central Point Planning Commission by Resolution No. 900 hereby approves the Horn Creek Floodplain Development Permit/No-Rise Certification based on the Staff Report dated December 6, 2022, including attachments incorporated by reference (Exhibit "A"); and

PASSED by the Planning Commission and signed by me in authentication of its passage this 6th day of December, 2022

Planning Commission Chair

ATTEST:

City Representative