



5. Preliminary Stormwater Design Report (TIR)



AKS ENGINEERING & FORESTRY, LLC
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 VANCOUVER, WA 98682
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Stormwater Memorandum

Date: June 24, 2025
To: City of Camas
 Community Development Department
 616 NE 4th Avenue
 Camas, WA 98607
From: Colin Shackelford, P.E.

AKS Job No.: **11021**

RE: Lacamas Village Preliminary Stormwater Report – PA24-13
 (Lots 1, 2, & 7 of the Urban Village Short Plat – SP20-02 & FP21-04)

This memorandum serves to address the stormwater design and mitigation for the Lacamas Village Subdivision, as shown on the development plans in Appendix B. Proposed stormwater runoff from the development will be conveyed to facilities that have been designed under an approved Final Drainage Analysis report completed by Olson Engineering in 2020 for Tract A and Tract B of the Urban Village Short Plat (UVSP), (SP20-02 & FP21-04). The Lacamas Village Subdivision proposes to develop three lots (Lots 1, 2, and 7) within the UVSP in the City of Camas. The project is located within the Northeast $\frac{1}{4}$ of Section 20 and 21, Township 2 North, Range 3 East, Willamette Meridian, Clark County (parent parcel numbers for UVSP are 986037-656 and 172559-000, see Appendix A for project vicinity map). The project consists of 12.70 acres.

A Final Drainage Analysis report, dated August 25th, 2020, was approved for the UVSP, prepared by Olson Engineering (MacKay Sposito). This final stormwater report summarizes the design of the combined detention and wetpool facilities with phosphorus treatment for Tract A and Tract B. Tract A is designed to provide adequate storage volume and treatment capacity for “catchments 5D, 6D, and 7aD”, an area approximately 22.17 acres in size. Tract B is designed to provide adequate storage volume and treatment capacity for “catchments 7bD and 8D” with an area of approximately 16.34 acres. These catchments and their areas are shown and summarized in Appendix C, the UVSP Developed Catchment Plan. The approved Final Drainage Analysis of UVSP addressed Minimum Requirements #1 – #9 for the entirety of the short plat development. These facilities will be completed prior to the Lacamas Village development connection.

The Lacamas Village project proposes to develop lots 1, 2, and 7 of the UVSP. Proposed improvements include residential attached and detached single-family homes, sidewalks, public and private streets, open spaces, and associated improvements. Stormwater facilities constructed with the Lacamas Village development will only include runoff collection and conveyance systems that will subsequently drain to the UVSP combined detention and wetpool facilities in Tracts A and B. These combined facilities have been designed to meet water quality and quantity standards as required by the City of Camas.

The project proposes greater than 5,000 sf of new plus replaced hard surfaces and is required to meet minimum requirements #1 - #9. Minimum requirements #4 - #9 are met by connecting to the previously designed facilities in Tract A and Tract B. Minimum requirements #1 - #3 will be met with the construction approval of the proposed development, meeting the City of Camas requirements.

Revisions to the boundaries are proposed for catchments 7aD and 7bD. These revisions were required to match the assumptions used in the design for the UVSP stormwater facilities. These revisions are shown on the Revised Basin Plan in Appendix D and summarized below in Table 1.

Table 1: Development Catchment Areas Summary

| Catchment Basin | Storm Facility | Green Mountain UVSP Land Use Description | Green Mountain UVSP Basin Area (ac) | Land Use Description with Lacamas Village | Basin Area with Lacamas Village (ac) |
|-----------------|----------------|--|-------------------------------------|---|--------------------------------------|
| 7aD | Tract A | Impervious (85%) | 10.099 | Impervious (84%) | 10.010 |
| | | Pervious (15%) | 1.782 | Pervious (16%) | 1.871 |
| 7bD | Tract B | Impervious (85%) | 11.953 | Impervious (84.5%) | 11.883 |
| | | Pervious (15%) | 2.110 | Pervious (15.5%) | 2.180 |

In summary, the boundary revisions proposed with the Lacamas Village project will meet the design assumptions made with the approved drainage report done by Olson Engineering in 2020 (SP20-02/FP21-04). All applicable minimum requirements are met with the proposed development per the 2024 Stormwater Management Manual for Western Washington and City of Camas requirements. A final areas analysis will be provided in the final technical information report and engineering plans, that addresses the proposed changes to the catchment basin boundaries.

Sincerely,



Colin J. Shackelford, P.E.
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Vancouver, WA 98682
(360) 882-0419 | shackelfordc@aks-eng.com

Enclosures:

- Certificate of the Engineer
- Appendix A: General Location Map
- Appendix B: Preliminary Development Plans
- Appendix C: GMUVP Developed Catchment Plan
- Appendix D: Revised Basin Plan

Certificate of the Engineer**Lacamas Village****Camas, Washington****Preliminary Stormwater Memorandum**

This Preliminary Stormwater Report and the data contained herein were prepared by the undersigned, whose seal, as a Professional Engineer licensed to practice as such, is affixed below. All information required by Camas Municipal Code (CMC) Chapter 14.02 is included in the proposed stormwater plan and the proposed facilities are feasible.

*6/24/2025*



Appendix A: Vicinity Maps



Vicinity Map



Legend

Taxlots

1 · 9 028



WGS_1984/Web/Mercator/Auxiliary_Sphere
Clark County, WA. GIS - <http://gis.clark.wa.gov>

This map was generated by Clark County's "MapsOnline" website. Clark County does not warrant the accuracy, reliability or timeliness of any information on this map, and shall not be held liable for losses caused by using this information. Taxlot (i.e., parcel) boundaries cannot be used to determine the location of property lines on the ground.

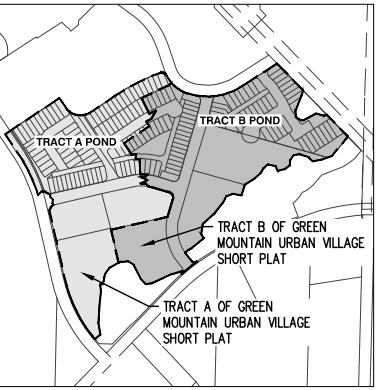
Notes:



Appendix B: Development Plans

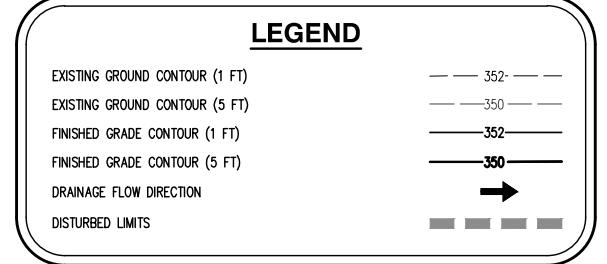
GENERAL NOTES

1. CONTOUR INTERVAL IS 1 FOOT.
2. TREES ARE NOT SHOWN.
3. STORMWATER TREATMENT AND DETENTION FACILITIES FOR THIS DEVELOPMENT HAVE BEEN DESIGNED AND CONSTRUCTED WITH THE GREEN MOUNTAIN URBAN VILLAGE SHORT PLAT (SP20-02). EXISTING FACILITIES WILL BE OWNED AND MAINTAINED BY THE HOA.
4. ACCORDING TO CLARK COUNTY GIS, THE SITE IS NOT WITHIN OR ADJACENT TO A 100-YEAR FLOODPLAIN OR SHORELINE MANAGEMENT AREA.
5. THERE ARE NO KNOWN EXISTING ON-SITE STORMWATER FACILITIES.
6. EXISTING DRAINAGE FLOW ROUTES ARE TO THE SOUTH AND WEST TOWARDS EXISTING STORMWATER FACILITIES INSTALLED WITH THE URBAN VILLAGE SHOR PLAT.
7. PROPOSED DRAINAGE FLOW ROUTES TO FOLLOW EXISTING FLOW ROUTES TO EXTENT POSSIBLE, WITH STORMWATER DISCHARGED FROM STORMWATER FACILITIES INTO EXISTING DITCHES TO THE WEST ALONG NE GOODWIN ROAD
8. ROOF AREAS FOR ALL LOTS DRAIN TO A STORMWATER LATERAL.
9. PRELIMINARY STORM SIZING LISTED BELOW TO BE FINALIZED DURING FINAL ENGINEERING:
STORM MAIN: 12" MIN. DIAMETER
CATCH BASIN LEADS: 10" MIN. DIAMETER
SINGLE-FAMILY STORM LATERALS: 6" DIAMETER



STORMWATER BASIN OVERVIEW MAP

N.T.S



LEGEND

EXISTING GROUND CONTOUR (1 FT)
EXISTING GROUND CONTOUR (5 FT)
FINISHED GRADE CONTOUR (1 FT)
FINISHED GRADE CONTOUR (5 FT)
DRAINAGE FLOW DIRECTION
DISTURBED LIMITS

A diagram showing a wedge-shaped mass. The top edge is labeled 'N'. A vertical line passes through the center of the wedge, and a horizontal line extends from the base of the wedge to the right.

1" = 40 FEET
SIZE: 22" x 34"

PRELIMINARY STORMWATER PLAN (WEST)
LACAMAS VILLAGE
WOLLAM & ASSOCIATES
CAMAS, WASHINGTON



| | |
|--------------|-----------|
| JOB NUMBER: | 11021 |
| DATE: | 6/24/2025 |
| DESIGNED BY: | CJS |
| DRAWN BY: | LMP/ALL |
| CHECKED BY: | CJS |

P7.0

SEE SHEET P7.1

P7.0



**PRELIMINARY STORMWATER PLAN (EASI)
LACAMAS VILLAGE
WOLLAM & ASSOCIATES
CAMA
S, WASHINGTON**



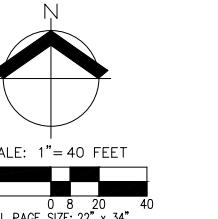
| | |
|-------------|------------------|
| DB NUMBER: | 11021 |
| ATE: | <u>6/24/2025</u> |
| ESIGNED BY: | CJS |
| RAWN BY: | LMP/ALL |
| HECKED BY: | CJS |

P7.1

This site plan illustrates the layout of a residential development with the following key features and labels:

- Streets and Alleys:** N BOXWOOD STREET, N ALDER STREET, ALLEY 4, N 87TH PLACE, N 86TH PLACE, N HUERTA DRIVE, and LOT 6.
- Tracts:** TRACT U (OPEN SPACE), TRACT V (OPEN SPACE), TRACT W (OPEN SPACE), TRACT X (PARKING), TRACT Y (OPEN SPACE), and TRACT D (URBAN VILLAGE SP).
- Utilities:**
 - EXISTING 12" STORMWATER MAIN (TYP) and 18" STORMWATER MAIN (TYP).
 - 6" STORMWATER CLEANOUT (TYP).
 - 12" STORMWATER MAIN (TYP).
 - STORMWATER LATERAL (TYP).
 - STORMWATER CATCH BASIN (TYP).
 - STORM AREA DRAIN (TYP).
- Parcels:** PARCEL NO. 986058-421, PARCEL NO. 986055-737, and PARCEL NO. 986068-836.
- Other:** FIRE HYDRANT, 30.00' ACCESS AND PUBLIC UTILITY EASEMENT, and 100.00' BPA EASEMENT.

Arrows labeled "SEE SHEET P7.0" point to the left margin of the map, indicating that the full details are provided on an adjacent sheet.



SCALE: 1" = 40 FEET

0 8 20 40

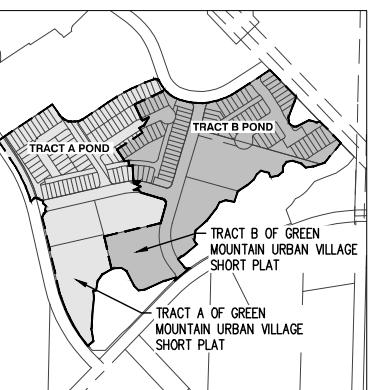
ORIGINAL PAGE SIZE: 22" x 34"

AGENDA

STING GROUND CONTOUR (1 FT)
STING GROUND CONTOUR (5 FT)
SHED GRADE CONTOUR (1 FT)
SHED GRADE CONTOUR (5 FT)
IMAGE FLOW DIRECTION
TURBED LIMITS

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STORMWATER BASIN OVERVIEW MAP



Appendix C: Pre-Developed Basin Map

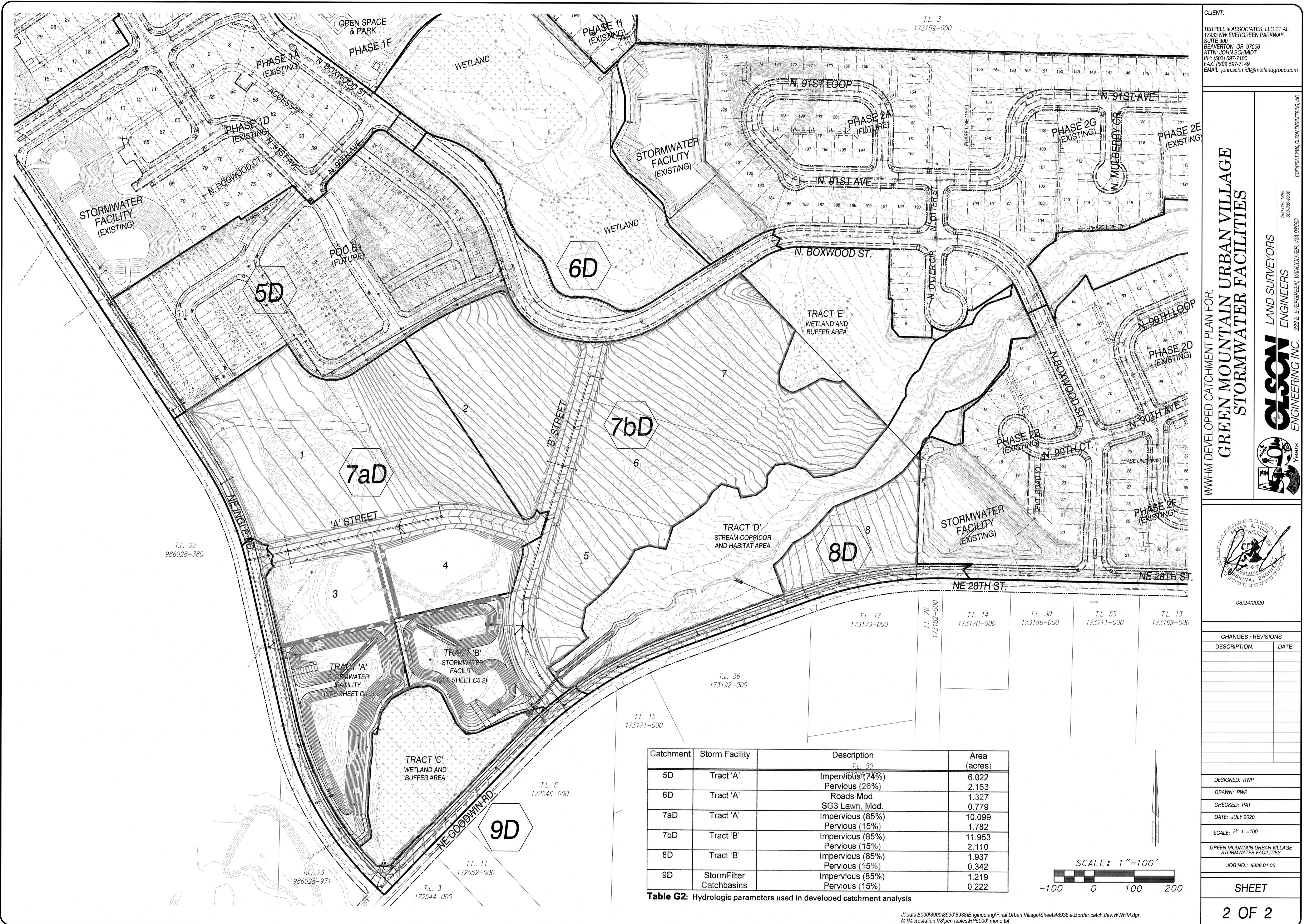


Table G2: Hydrologic parameters used in developed catchment analysis



Appendix D: Post-Developed Basin Map



| CATCHMENT | STORM FACILITY | URBAN VILLAGE SP DESCRIPTION | URBAN VILLAGE SP AREA (AC) | PROPOSED DESCRIPTION W/ LACAMAS VILLAGE | PROPOSED AREA (AC) W/ LACAMAS VILLAGE | HATCH LEGEND |
|-----------|----------------|------------------------------|----------------------------|---|---------------------------------------|--------------|
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| | | PERVIOUS (15%) | 1.782 | PERVIOUS (16%) | 1.871 | |
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