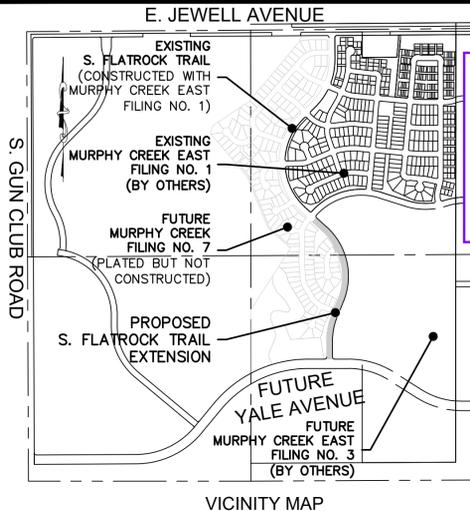


# S. FLATROCK TRAIL EXTENSION

## PRELIMINARY DRAINAGE PLAN



The analysis has been broken into two conditions as requested. The Historic Plan (interim) will show the proposed conditions of EDN 221603 and RSN 1585201 as existing, and the historic conditions of RSN 1627119. The Proposed Plan (ultimate) will then show the proposed conditions of RSN 1627119 as existing, and the improvements of this project as proposed.

Analysis for this Preliminary Drainage Plan and Report need to be per two conditions, the interim condition and the ultimate condition. In the interim condition, show the proposed improvements for Murphy Creek East Filing #1 - EDN 221063 (which has been approved) as existing and Murphy Creek Filing #7 - RSN 1585201 (which is at signature set with minimal comments remaining) as existing, and for the Murphy Creek East Filing #1 - RSN 1627119 site show the existing topography as shown on this PDP. For the ultimate condition, show the proposed conditions for all 3 sites as existing with the proposed improvements for your design of S Flatrock Trail as proposed. If there is any confusion on this please reach out and we can discuss.

The layout you are showing from the MDR (EDN 220220) does not match the proposed improvements from the Murphy Creek East Filing #3 (RSN 1627119) PDP. Since the updated layout for RSN 1627119 is not consistent with the MDR (Pond D has been eliminated in RSN 1627119 and Pond C is being revised to treat tributary areas for both Pond C & D from the MDR), the MDR will need to be revised to reflect these changes. Since your site is directly affected by these MDR alterations as shown on RSN 1627119, do not resubmit this PD until the MDR revision has been submitted and has no significant comments remaining. Please coordinate with the Murphy Creek East Filing #3 (RSN 1627119) development, the engineer's contact information is:  
Mickey Watson  
Redland  
mwatson@redland.com

**1st Review**  
Contact Andrew Renner with any questions.  
ARenner@bhinc.com  
Re-submittal required. Please provide responses to the provided comments to expedite the next review.  
Please note: A comment labeled "TYP" indicates that the comment needs to be addressed on all sheets where a similar condition occurs.  
Due to lack of updated reference material and information provided, this preliminary drainage report could not be fully reviewed. Additional new comments may be included on the next submittal once all required information is included.

**LEGEND**

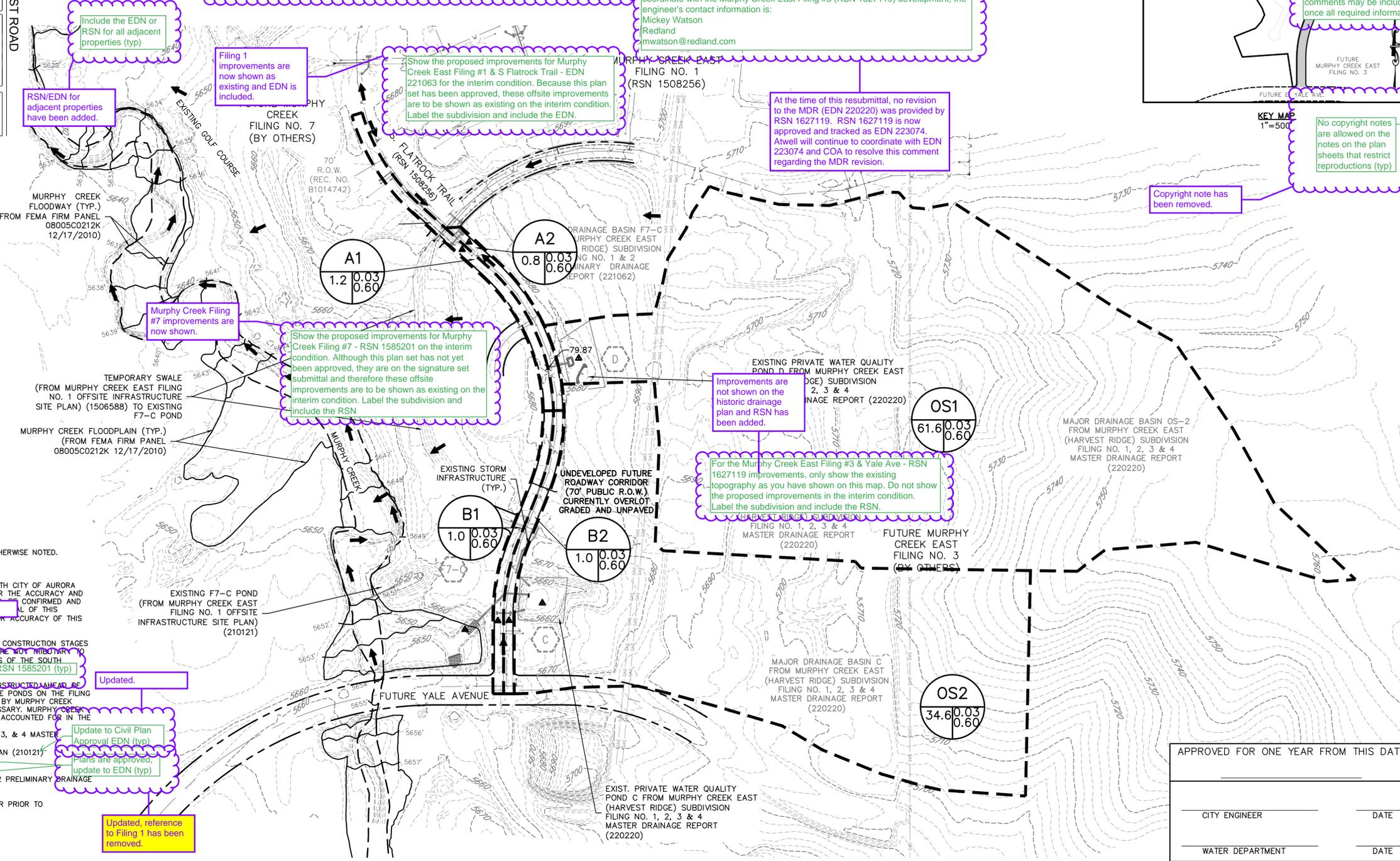
- PROPERTY BOUNDARY
- EXISTING LOT LINE
- PROPOSED CURB & GUTTER
- EXISTING CURB & GUTTER
- PROPOSED SIDEWALK
- PROPOSED CONCRETE PAVEMENT
- SECTION LINE
- PROPOSED EASEMENT
- EXISTING EASEMENT
- PROPOSED 2' CONTOURS
- EXISTING 2' CONTOURS
- BASE FLOOD ELEVATION

**DESIGN POINT**

A = BASIN DESIGNATION  
B = AREA IN ACRES  
C = 2 YR RUNOFF COEFFICIENT  
D = 100 YR RUNOFF COEFFICIENT

MAJOR BASIN BOUNDARY  
PROPOSED BASIN BOUNDARY  
DRAINAGE FLOW ARROW  
HIGH OR LOW POINT

- DRAINAGE PLAN NOTES**
- ALL STORM INFRASTRUCTURE IS TO BE PUBLICLY MAINTAINED UNLESS OTHERWISE NOTED.
  - STORM SYSTEM HAS BEEN SIZED FOR THE 100-YR STORM.
  - "CITY OF AURORA PLAN REVIEW IS ONLY FOR GENERAL CONFORMANCE WITH CITY OF AURORA DESIGN CRITERIA AND THE CITY CODE. THE CITY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, OF DIMENSIONS AND ELEVATIONS WHICH SHALL BE CONFIRMED AND CORRELATED AT THE JOB SITE. THE CITY OF AURORA EDN ADDED.
  - MURPHY CREEK 7 AND MURPHY CREEK EAST ARE ANTICIPATED TO BE IN CONSTRUCTION STAGES DURING THE CONSTRUCTION OF SOUTH FLATROCK TRAIL. THESE FILINGS ARE NOT INTENTIVE TO POND C/DESIGN POINT 6 AND DO NOT AFFECT THE DRAINAGE CONDITIONS OF THE SOUTH FLATROCK TRAIL PROJECT. [Murphy Creek Filing #7 RSN 1585201 (typ)]
  - MURPHY CREEK EAST (BY CVL CONSULTANTS) IS ANTICIPATED TO BE CONSTRUCTED AHEAD OF MURPHY CREEK FILING NO. 7. MURPHY CREEK EAST IS CONSTRUCTING THE PONDS ON THE FILING NO. 7 PROPERTY. FILING NO. 7 IS MAINTAINING PONDS AS CONSTRUCTED BY MURPHY CREEK EAST AND ONLY MODIFYING GRADING AND OUTLET STRUCTURES AS NECESSARY. MURPHY CREEK EAST PROJECT INCLUDES THE FOLLOWING SUBMISSIONS THAT HAVE BEEN ACCOUNTED FOR IN THE DESIGN OF FILING NO. 7:
    - MURPHY CREEK EAST (HARVEST RIDGE) SUBDIVISION FILING NO. 1, 2, 3, & 4 MASTER DRAINAGE REPORT (220220)
    - MURPHY CREEK EAST FILING NO. 1 OFFSITE INFRASTRUCTURE SITE PLAN (210121)
    - MURPHY CREEK EAST FILING NO. 1 CIVIL PLANS (RSN 1508256)
    - MURPHY CREEK EAST FILING NO. 2 CIVIL PLANS (RSN 1509083)
    - MURPHY CREEK EAST (HARVEST RIDGE) SUBDIVISION FILING NO. 1 & 2 PRELIMINARY DRAINAGE REPORT (221062)
  - THE CONSTRUCTION OF SOUTH FLATROCK TRAIL IS ANTICIPATED TO OCCUR PRIOR TO DEVELOPMENT OF MURPHY CREEK FILINGS 3 AND/OR 4.



Include the EDN or RSN for all adjacent properties (typ)

RSN/EDN for adjacent properties have been added.

Filing 1 improvements are now shown as existing and EDN is included.

Show the proposed improvements for Murphy Creek East Filing #1 & S Flatrock Trail - EDN 221063 for the interim condition. Because this plan set has been approved, these offsite improvements are to be shown as existing on the interim condition. Label the subdivision and include the EDN.

At the time of this resubmittal, no revision to the MDR (EDN 220220) was provided by RSN 1627119. RSN 1627119 is now approved and tracked as EDN 223074. Atwell will continue to coordinate with EDN 223074 and COA to resolve this comment regarding the MDR revision.

Show the proposed improvements for Murphy Creek Filing #7 - RSN 1585201 on the interim condition. Although this plan set has not yet been approved, they are on the signature set submittal and therefore these offsite improvements are to be shown as existing on the interim condition. Label the subdivision and include the RSN

Improvements are not shown on the historic drainage plan and RSN has been added.

For the Murphy Creek East Filing #3 & Yale Ave - RSN 1627119 improvements, only show the existing topography as you have shown on this map. Do not show the proposed improvements in the interim condition. Label the subdivision and include the RSN.

Murphy Creek Filing #7 improvements are now shown.

Updated.

Update to Civil Plan Approval EDN (typ)

Plans are approved, update to EDN (typ)

Updated, reference to Filing 1 has been removed.

Acknowledged.

Copyright note has been removed.

No copyright notes are allowed on the notes on the plan sheets that restrict reproductions (typ)

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303.961.4242  
HARVEY ALPERT

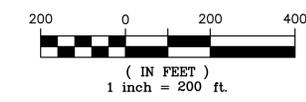
**CLIENT**  
MURPHY CREEK DEVELOPMENT, LLC  
S. FLATROCK TRAIL EXTENSION  
AURORA, COLORADO  
PRELIMINARY DRAINAGE PLAN  
HISTORIC DRAINAGE MAP

DATE 09/22/2021

APPROVED FOR ONE YEAR FROM THIS DATE	
CITY ENGINEER	DATE
WATER DEPARTMENT	DATE

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**BENCHMARK**  
CITY OF AURORA ID: 4S6519SR001 (OLD #21-065) PUNCH IN 3" DIAM. BRASS CAP ON NORTHEAST CORNER IN CONCRETE BASE FOR 1ST POWER TOWER SOUTH OF THE FLORIDA LANDLINE; SAID POWER TOWER BEING ON THE WEST SIDE OF HARVEST ROAD.  
PUBLISHED ELEVATION: 5,629.98 (C.O.A. DATUM: NAVD 88-U.S. SURVEY FT.)



DR. EAP	CH. RDL
P.M. RDL	
JOB 21003852	
SHEET NO. 1	

CAD FILE: 21003852 - DRAINAGE MAP - EXISTING CONDITIONS.DWG



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HARVEY ALPERT

MURPHY CREEK DEVELOPMENT, LLC  
S. FLATROCK TRAIL EXTENSION  
AURORA, COLORADO  
PRELIMINARY DRAINAGE PLAN  
PROPOSED DRAINAGE MAP

CLIENT

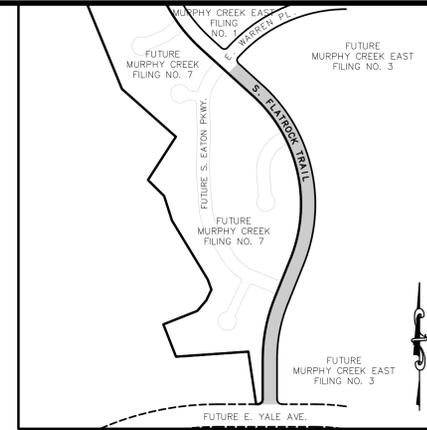
DATE 09/22/2021

APPROVED FOR ONE YEAR FROM THIS DATE

CITY ENGINEER DATE

WATER DEPARTMENT DATE

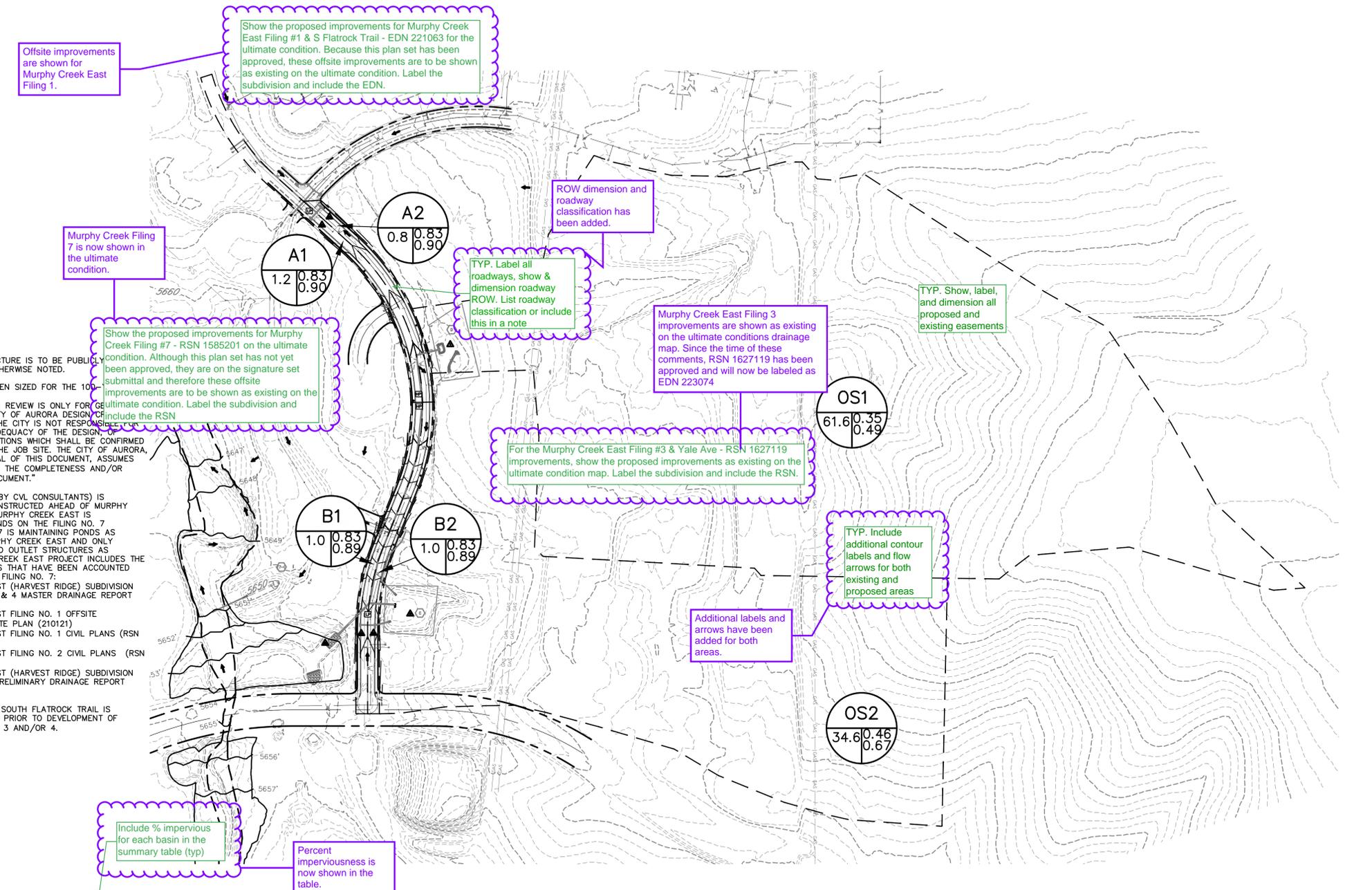
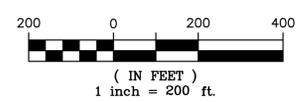
DR. EAP CH. RDL  
P.M. RDL  
JOB # 21003852  
SHEET NO. 2



KEY MAP 1"=500'

LEGEND

- PROPERTY BOUNDARY
- EXISTING LOT LINE
- PROPOSED CURB & GUTTER
- EXISTING CURB & GUTTER
- PROPOSED SIDEWALK
- PROPOSED CONCRETE PAVEMENT
- SECTION LINE
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- DESIGN POINT
- MAJOR BASIN BOUNDARY
- PROPOSED BASIN BOUNDARY
- DRAINAGE FLOW ARROW
- HIGH OR LOW POINT



Offsite improvements are shown for Murphy Creek East Filing 1.

Show the proposed improvements for Murphy Creek East Filing #1 & S Flatrock Trail - EDN 221063 for the ultimate condition. Because this plan set has been approved, these offsite improvements are to be shown as existing on the ultimate condition. Label the subdivision and include the EDN.

Murphy Creek Filing 7 is now shown in the ultimate condition.

Show the proposed improvements for Murphy Creek Filing #7 - RSN 1585201 on the ultimate condition. Although this plan set has not yet been approved, they are on the signature set submittal and therefore these offsite improvements are to be shown as existing on the ultimate condition. Label the subdivision and include the RSN.

ROW dimension and roadway classification has been added.

TYP. Label all roadways, show & dimension roadway ROW. List roadway classification or include this in a note.

Murphy Creek East Filing 3 improvements are shown as existing on the ultimate conditions drainage map. Since the time of these comments, RSN 1627119 has been approved and will now be labeled as EDN 223074.

TYP. Show, label, and dimension all proposed and existing easements.

For the Murphy Creek East Filing #3 & Yale Ave - RSN 1627119 improvements, show the proposed improvements as existing on the ultimate condition map. Label the subdivision and include the RSN.

TYP. Include additional contour labels and flow arrows for both existing and proposed areas.

Additional labels and arrows have been added for both areas.

Include % impervious for each basin in the summary table (typ)

Percent imperviousness is now shown in the table.

DRAINAGE PLAN NOTES

- ALL STORM INFRASTRUCTURE IS TO BE PUBLICLY MAINTAINED UNLESS OTHERWISE NOTED.
- STORM SYSTEM HAS BEEN SIZED FOR THE 100-YR FLOOD PROTECTION STANDARD.
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- THE CONSTRUCTION OF SOUTH FLATROCK TRAIL IS ANTICIPATED TO OCCUR PRIOR TO DEVELOPMENT OF MURPHY CREEK FILINGS 3 AND/OR 4.

PROPOSED DIRECT RUNOFF SUMMARY TABLE

DESIGN POINT	CONTRIBUTING BASIN	CONTRIBUTING AREA (ACRES)	FROM PDR		REFER TO NOTES BELOW	FROM MDR		REFER TO NOTES BELOW
			2-YR DIRECT RUNOFF (CFS)	100-YR DIRECT RUNOFF (CFS)		2-YR DIRECT RUNOFF (CFS)	100-YR DIRECT RUNOFF (CFS)	
A1	A1	1.20	3.16	9.20				
A2	A2	0.80	2.08	6.07				
B1	B1	1.00	2.60	7.58				
B2	B2	1.00	2.60	7.58				
1	OS1	61.60	41.61	160.93	41.61	160.93	1	
2	OS2	34.60	0.45	58.81	28.85	114.28	1	

NOTE 1: FLOW NUMBERS ARE REFERENCED FROM "MURPHY CREEK EAST (HARVEST RIDGE) SUBDIVISION FILING NO. 1, 2, 3, 4 MASTER DRAINAGE REPORT", DATED NOVEMBER 2020. WHERE THERE ARE BOTH MDR AND PDR VALUES, MDR FLOWS HAVE BEEN USED IN THE DESIGN OF FILING NO. 7 TO BE MORE CONSERVATIVE.

NOTE 2: FLOW NUMBERS ARE REFERENCED FROM "MASTER DRAINAGE PLAN FOR MURPHY CREEK, A PLANNED COMMUNITY", DATED FEBRUARY 1998.

NOTE 3: FLOW NUMBERS ARE REFERENCED FROM "MURPHY CREEK EAST (HARVEST RIDGE) SUBDIVISION FILING NO. 1 & 2 PRELIMINARY DRAINAGE REPORT", DATED FEBRUARY 2021.

NOTE 4: FLOW NUMBERS ARE REFERENCED FROM "PRELIMINARY DRAINAGE REPORT FOR MURPHY CREEK 7", DATED AUGUST 31ST, 2021 BASED ON RATIONAL CALCULATIONS FOR THE OFF-SITE TRIBUTARY AREAS WITHIN THE GOLF COURSE PROPERTY."

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**BENCHMARK**  
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PUBLISHED ELEVATION: 5,629.98 (C.O.A. DATUM: NAVD 88-U.S. SURVEY FT.)

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MURPHY CREEK DEVELOPMENT, LLC  
S. FLATROCK TRAIL EXTENSION  
AURORA, COLORADO  
PRELIMINARY DRAINAGE PLAN  
PROPOSED DRAINAGE MAP

CLIENT

DATE 09/22/2021

APPROVED FOR ONE YEAR FROM THIS DATE

CITY ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

WATER DEPARTMENT \_\_\_\_\_ DATE \_\_\_\_\_

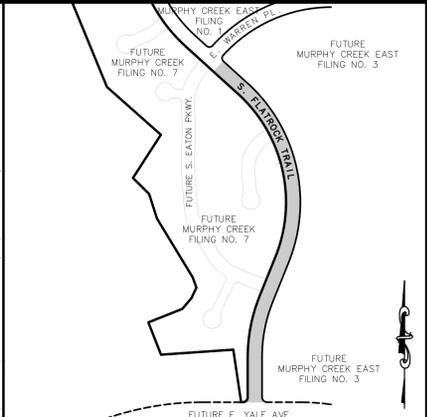
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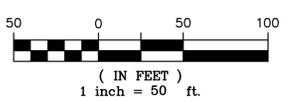
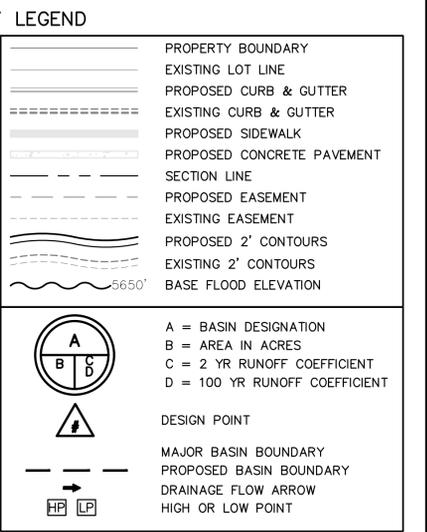
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PUBLISHED ELEVATION: 5,629.98 (C.O.A. DATUM: NAVD 88-U.S. SURVEY FT.)

DR. EAP CH. RDL  
P.M. RDL  
JOB 21003852  
SHEET NO. 3



KEY MAP  
1"=500'



- DRAINAGE PLAN NOTES**
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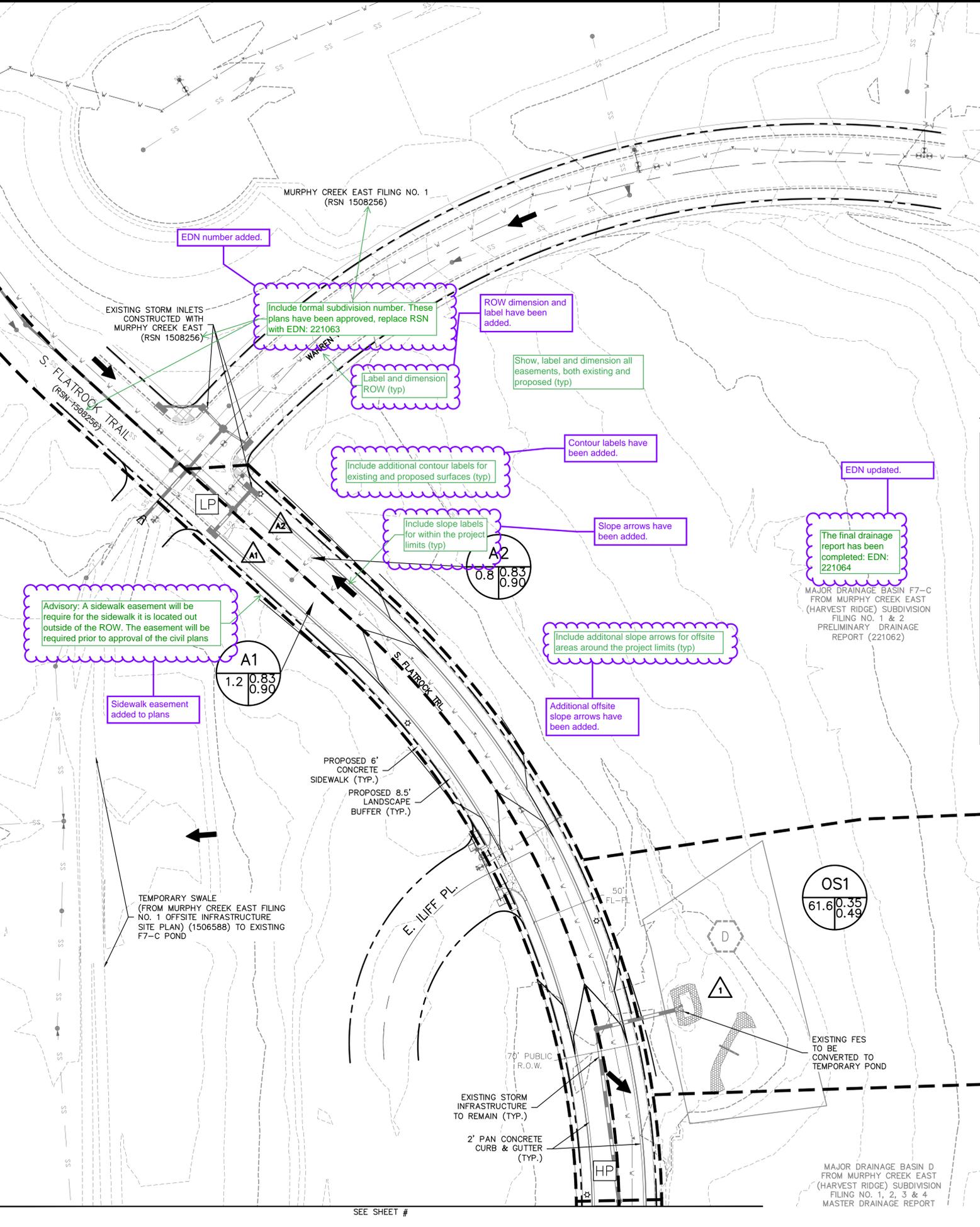
DESIGN POINT	CONTRIBUTING BASIN	CONTRIBUTING AREA (ACRES)	FROM PDR		FROM MDR		REFER TO NOTES BELOW
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SEE SHEET #

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303.462.1100

**DEVELOPER**  
9335 E HARVARD AVE.  
DENVER, CO 80231  
303.961.4242  
HARVEY ALPERT

**CLIENT**  
MURPHY CREEK DEVELOPMENT, LLC  
S. FLATROCK TRAIL EXTENSION  
AURORA, COLORADO  
PRELIMINARY DRAINAGE PLAN  
PROPOSED DRAINAGE MAP

**DATE** 09/22/2021

APPROVED FOR ONE YEAR FROM THIS DATE

CITY ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

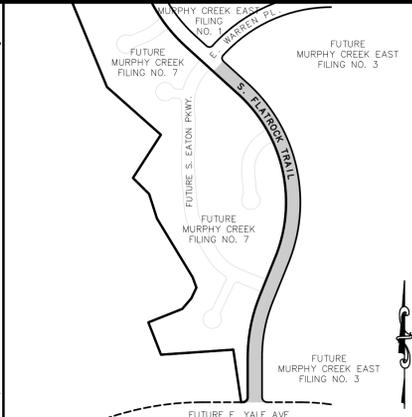
WATER DEPARTMENT \_\_\_\_\_ DATE \_\_\_\_\_

CITY OF AURORA PLAN REVIEW IS ONLY FOR GENERAL CONFORMANCE WITH CITY OF AURORA DESIGN CRITERIA AND THE CITY CODE. THE CITY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, OF DIMENSIONS, AND ELEVATIONS WHICH SHALL BE CONFIRMED AND CORRELATED AT THE JOB SITE. THE CITY OF AURORA THROUGH THE APPROVAL OF THIS DOCUMENT ASSUMES NO OTHER RESPONSIBILITY OTHER THAN AS STATED ABOVE FOR COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT.

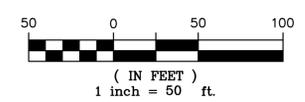
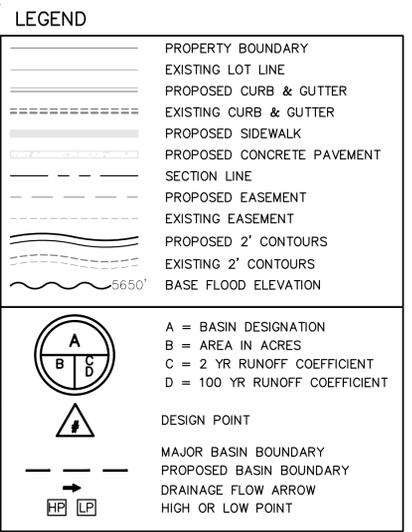
**BENCHMARK**  
CITY OF AURORA ID: 4S6519SRE001 (OLD #21-065)  
PUNCH IN 3" DIAM. BRASS CAP ON NORTHEAST CORNER IN CONCRETE BASE FOR 1ST POWER TOWER SOUTH OF THE FLORIDA LANDLINE; SAID POWER TOWER BEING ON THE WEST SIDE OF HARVEST ROAD.

PUBLISHED ELEVATION: 5,629.98 (C.O.A. DATUM: NAVD 88-U.S. SURVEY FT.)

DR. EAP CH. RDL  
P.M. RDL  
JOB # 21003852  
SHEET NO. 4



KEY MAP  
1"=500'



- DRAINAGE PLAN NOTES**
- ALL STORM INFRASTRUCTURE IS TO BE PUBLICLY MAINTAINED UNLESS OTHERWISE NOTED.
  - STORM SYSTEM HAS BEEN SIZED FOR THE 100-YR STORM.
  - "CITY OF AURORA PLAN REVIEW IS ONLY FOR GENERAL CONFORMANCE WITH CITY OF AURORA DESIGN CRITERIA AND THE CITY CODE. THE CITY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, OF DIMENSIONS AND ELEVATIONS WHICH SHALL BE CONFIRMED AND CORRELATED AT THE JOB SITE. THE CITY OF AURORA, THROUGH THE APPROVAL OF THIS DOCUMENT, ASSUMES NO RESPONSIBILITY FOR THE COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT."
  - MURPHY CREEK EAST (BY CVL CONSULTANTS) IS ANTICIPATED TO BE CONSTRUCTED AHEAD OF MURPHY CREEK FILING NO. 7. MURPHY CREEK EAST IS CONSTRUCTING THE PONDS ON THE FILING NO. 7 PROPERTY. FILING NO. 7 IS MAINTAINING PONDS AS CONSTRUCTED BY MURPHY CREEK EAST AND ONLY MODIFYING GRADING AND OUTLET STRUCTURES AS NECESSARY. MURPHY CREEK EAST PROJECT INCLUDES THE FOLLOWING SUBMISSIONS THAT HAVE BEEN ACCOUNTED FOR IN THE DESIGN OF FILING NO. 7:
    - MURPHY CREEK EAST (HARVEST RIDGE) SUBDIVISION FILING NO. 1, 2, 3, & 4 MASTER DRAINAGE REPORT (220220)
    - MURPHY CREEK EAST FILING NO. 1 OFFSITE INFRASTRUCTURE SITE PLAN (210121)
    - MURPHY CREEK EAST FILING NO. 1 CIVIL PLANS (RSN 1508256)
    - MURPHY CREEK EAST FILING NO. 2 CIVIL PLANS (RSN 1509083)
    - MURPHY CREEK EAST (HARVEST RIDGE) SUBDIVISION FILING NO. 1 & 2 PRELIMINARY DRAINAGE REPORT (221062)
  - THE CONSTRUCTION OF SOUTH FLATROCK TRAIL IS ANTICIPATED TO OCCUR PRIOR TO DEVELOPMENT OF MURPHY CREEK FILINGS 3 AND/OR 4.

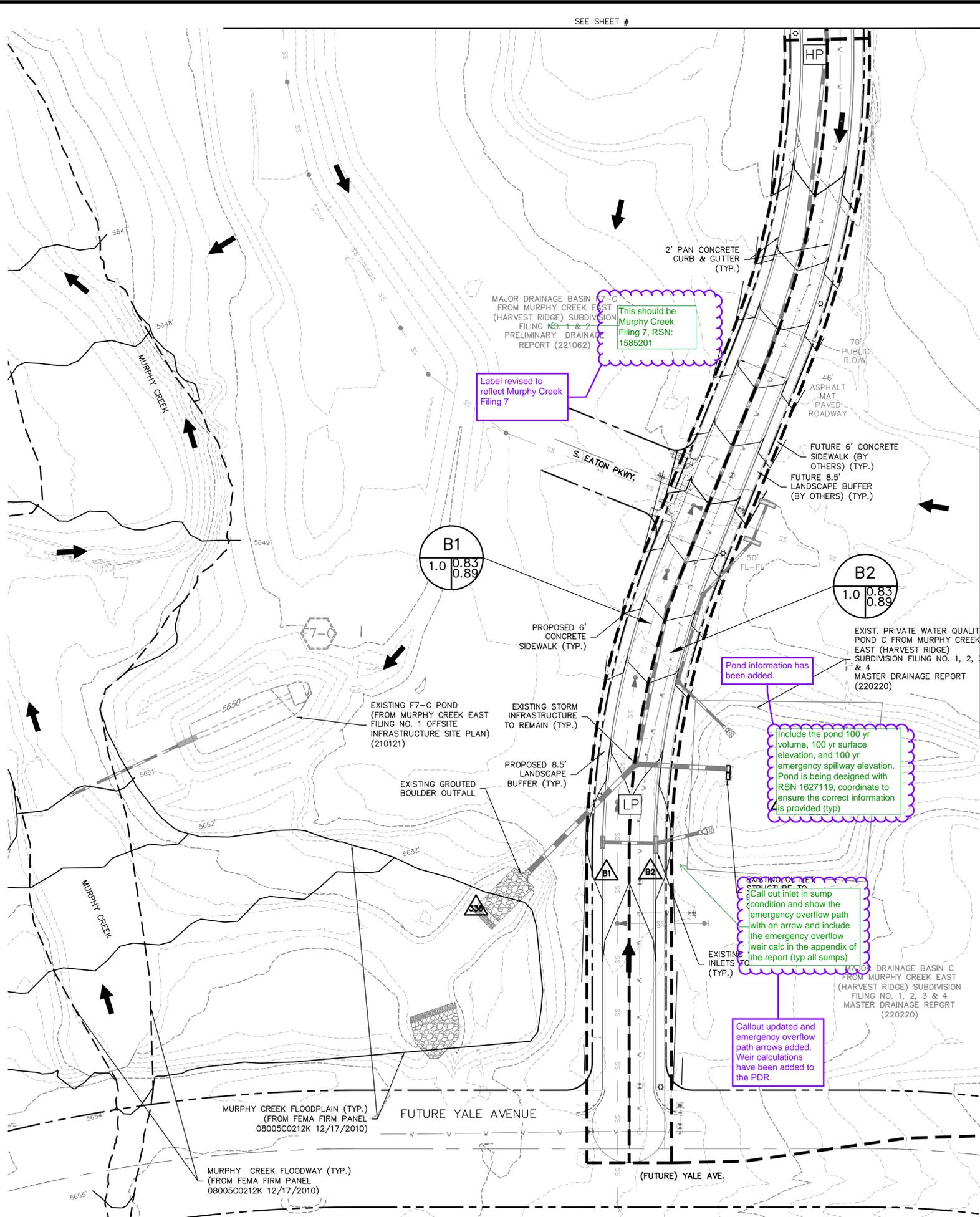
DESIGN POINT	CONTRIBUTING BASIN	CONTRIBUTING AREA (ACRES)	FROM PDR		REFER TO NOTES BELOW	FROM MDR		REFER TO NOTES BELOW
			2-YR DIRECT RUNOFF (CFS)	100-YR DIRECT RUNOFF (CFS)		2-YR DIRECT RUNOFF (CFS)	100-YR DIRECT RUNOFF (CFS)	
A1	A1	1.20	3.16	9.20				
A2	A2	0.80	2.08	6.07				
B1	B1	1.00	2.60	7.58				
B2	B2	1.00	2.60	7.58				
1	OS1	61.60	41.61	160.93		41.61	160.93	1
2	OS2	34.60	0.45	58.81		28.85	114.28	1

NOTE 1: FLOW NUMBERS ARE REFERENCED FROM "MURPHY CREEK EAST (HARVEST RIDGE) SUBDIVISION FILING NO. 1, 2, 3, 4 MASTER DRAINAGE REPORT", DATED NOVEMBER 2020. WHERE THERE ARE BOTH MDR AND PDR VALUES, MDR FLOWS HAVE BEEN USED IN THE DESIGN OF FILING NO. 7 TO BE MORE CONSERVATIVE.

NOTE 2: FLOW NUMBERS ARE REFERENCED FROM "MASTER DRAINAGE PLAN FOR MURPHY CREEK, A PLANNED COMMUNITY", DATED FEBRUARY 1998.

NOTE 3: FLOW NUMBERS ARE REFERENCED FROM "MURPHY CREEK EAST (HARVEST RIDGE) SUBDIVISION FILING NO. 1 & 2 PRELIMINARY DRAINAGE REPORT", DATED FEBRUARY 2021.

NOTE 4: FLOW NUMBERS ARE REFERENCED FROM "PRELIMINARY DRAINAGE REPORT FOR MURPHY CREEK 7", DATED AUGUST 31ST, 2021 BASED ON RATIONAL CALCULATIONS FOR THE OFF-SITE TRIBUTARY AREAS WITHIN THE GOLF COURSE PROPERTY.



MAJOR DRAINAGE BASIN C FROM MURPHY CREEK EAST (HARVEST RIDGE) SUBDIVISION FILING NO. 1 & 2 PRELIMINARY DRAINAGE REPORT (221062)

This should be Murphy Creek Filing 7, RSN: 1585201

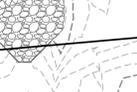
Label revised to reflect Murphy Creek Filing 7

Pond information has been added.

Include the pond 100 yr volume, 100 yr surface elevation, and 100 yr emergency spillway elevation. Pond is being designed with RSN 1627119, coordinate to ensure the correct information is provided (typ)

EXISTING OUTLET STRUCTURE TO CALL OUT INLET IN SUMP (condition and show the emergency overflow path with an arrow and include the emergency overflow weir calc in the appendix of the report (typ all sumps))

Callout updated and emergency overflow path arrows added. Weir calculations have been added to the PDR.



MURPHY CREEK FLOODPLAIN (TYP.) (FROM FEMA FIRM PANEL 08005C0212K 12/17/2010)

MURPHY CREEK FLOODWAY (TYP.) (FROM FEMA FIRM PANEL 08005C0212K 12/17/2010)

(FUTURE) YALE AVE.