

#### Basin C16.26

Basin C16.26 consists of residential development located on Mumford Drive. Runoff is directed north in curb/gutter in Mumford Drive to Design Point 10b to a proposed Type "R" inlet at Mumford/Clarion Drive. The developed flow from this basin is 3.2cfs and 6.9cfs for the 5/100-year storm event. See the appendix for detailed calculations

#### Basin C16.27

Basin C16.27 consists of residential development located on Mumford Drive. Runoff is directed north in curb/gutter in Mumford Drive to Design Point 10c to a proposed Type "R" inlet at Mumford/Clarion Drive. The developed flow from this basin is 0.6cfs and 1.3cfs for the 5/100-year storm event See the appendix for detailed calculations

#### Basin C16.28

Basin C16.28 consists of residential development located on Wacissa, Zealand, Ballona Drive. Runoff is directed west in Ballona Drive/Zealand Drive and then north in curb/gutter in Wacissa Drive to Design Point 16 to a proposed 30' Type "R" inlet in Wacissa Drive. The developed flow from this basin is 3.9cfs and 8.6cfs for the 5/100-year storm event See the appendix for detailed calculations

#### Basin C16.29

Basin C16.29 consists of residential development located on Wacissa, Zealand, Clarion Drive. Runoff is directed west in Ballona Drive/Zealand Drive and then north in curb/gutter in Wacissa Drive to Design Point 16 to a proposed 30' Type "R" inlet in Wacissa Drive. The developed flow from this basin is 3.7cfs and 8.2cfs for the 5/100-year storm event See the appendix for detailed calculations

Clarion?

#### Basin C16.30

Basin C16.30 consists of residential development located on Wacissa and Tarbell Drive. Runoff is directed south in curb/gutter in Wacissa Drive to Design Point 14 to a proposed Type "R" inlet in Wacissa Drive. The developed flow from this basin is 6.8cfs and 15.2cfs for the 5/100-year storm event. See the appendix for detailed calculations

#### Basin C16.31

Basin C16.31 consists of backyards of houses on Wacissa Drive, East Tributary, and open space. Runoff is directed overland to the East Tributary. The developed flow from this basin is 6.9cfs and 27.4cfs for the 5/100-year storm event. See Section 6.0 for water quality discussions for backyards. See the appendix for detailed calculations

#### Basin C16.32

Basin C16.32 consists of residential development located on Wacissa and Ballona Drive. Runoff is directed east in Ballona Drive and then north in curb/gutter in Wacissa Drive to Design Point 17 to a proposed 30' Type "R" inlet. The developed flow from this basin is 1.8cfs and 4.1cfs for the 5/100-year storm event. See the appendix for detailed calculations

#### Basin C16.34

Basin C16.34 consists of flow from Lamprey Drive and the adjacent backyards. Runoff is directed south in curb/gutter in to a Type "R" inlet in the NW corner of Fontaine Boulevard and Lamprey Drive at Design Point 34. The developed flow from this basin is 0.9cfs and 1.9cfs for the 5/100-year storm event. See the appendix for detailed calculations

#### Basin C16.35

Basin C16.35 consists of flow from residential development and Fontaine Boulevard. Runoff is directed south and west in curb/gutter in to a proposed Type "R" inlet in the NE corner of Fontaine Boulevard and Edisto Drive at Design Point 35. The developed flow from this basin is 2.8cfs and 6.2cfs for the 5/100-year storm event. See the appendix for detailed calculations

channels, and the outlet structure. The following is a discussion on the inflow hydrographs used for the analysis:

- Hydrograph 1 – school site basin to school pond, fully developed
- Hydrograph 2 – existing flow to east end of Fontaine. See Fontaine FDR, CDR183 for basin limits
- Hydrograph 3– C17 basins from Lorson Ranch East, fully developed
- Hydrograph 4 – basin tributary to Interim Detention Pond C3, vacant land
- Hydrograph 5 – school pond outflow hydrograph
- Hydrograph 6 – school site basin flowing to Fontaine Boulevard, fully developed
- Hydrograph 7 – C16 Basins from Lorson Ranch East Filing No. 2, fully developed
- Hydrograph 8 – Existing Basin EX-3.1-3.3, vacant land
- Hydrograph 9 – Outflow from Interim Detention Pond C3
- Hydrograph 10 – Interim inflow at Design Point 18 to Pond C5
- Hydrograph 11 – Total interim inflow to Pond C5
- Hydrograph 12 – Total interim outflow from Pond C5

The interim conditions outflow for Pond C5 is 115cfs and 374cfs for the 5/100 year storm events at Design Point 46. The pre-developed flow conditions at Design Point 46 (Etrib) are 141cfs and 458cfs for the 5/100 year storm events. The interim flows are lower than pre-developed conditions and will not cause negative downstream impacts. The outlet structure does not need modification at this time to accommodate interim flows.

Water Quality Design

Water quality for this final plat will be provided by Pond C5 for 96.8% of the 53.87acre site. Approximately 1.75acres (3.2%) of the total 53.87-acre final plat area consists of backyards that drain directly to the East Tributary over a grass buffer constructed and maintained in accordance with DCM Volume 2. Final platting of these areas includes a deviation from county criteria for a grass buffer bmp. Water Quality for the “C” is provided by full spectrum pond Pond C5.

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**7.0 DRAINAGE AND BRIDGE FEES**

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Lorson Ranch East Filing No. 2 is located within the Jimmy Camp Creek drainage basin which is currently a fee basin in El Paso County. Current El Paso County regulations require drainage and bridge fees to be paid for platting of land as part of the plat recordation process.





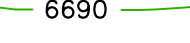


Lorson Ranch Metro District will compile and submit to the county on a yearly basis the Drainage and bridge fees for the approved plats, and shall show all credits they have received for the same yearly time frame.

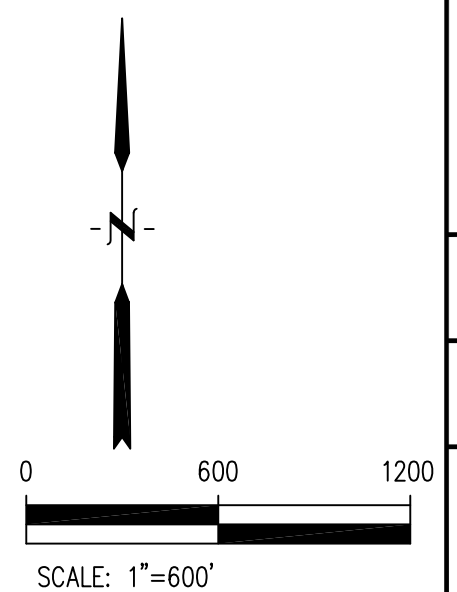
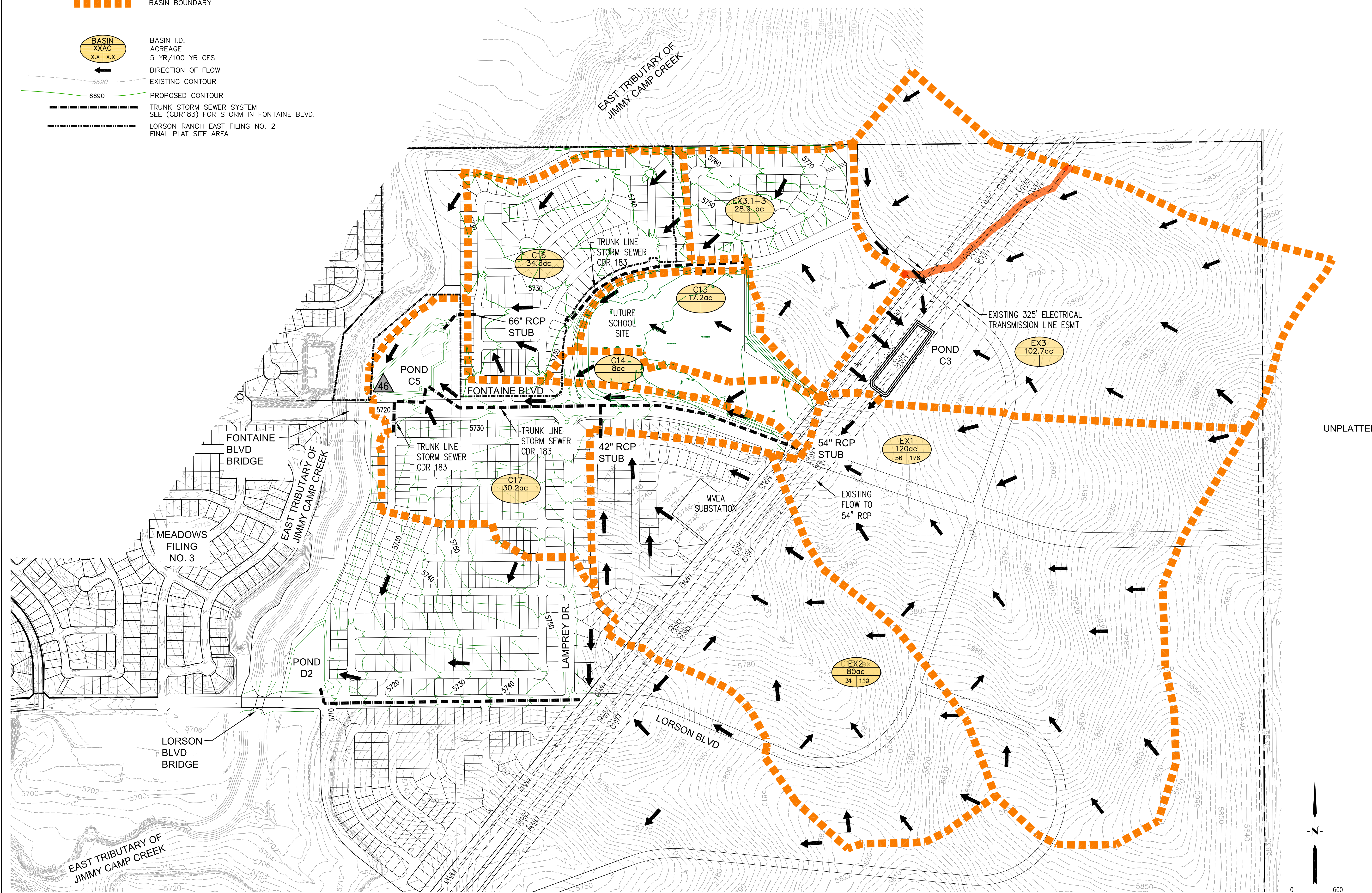
Replace the fee calculation.  
(The separate spreadsheet is only for tracking purposes.)

**Table 7.1: Public Drainage Facility Costs (non-reimbursable)**

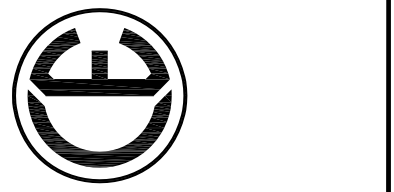
Item	Quantity	Unit	Unit Cost	Item Total
Rip Rap	100	CY	\$50/CY	\$5,000
Inlets/Manholes	23	EA	\$3000/EA	\$69,000
18" Storm	160	LF	\$35	\$5,600
24" Storm	385	LF	\$40	\$15,400
30" Storm	400	LF	\$45	\$18,000
36" Storm	42	LF	\$55	\$2,310
48" Storm	175	LF	\$85	\$14,875

**LEGEND**

-  BASIN BOUNDARY
-  BASIN I.D.  
ACREAGE  
5 YR/100 YR CFS
-  DIRECTION OF FLOW
-  EXISTING CONTOUR
-  6690 PROPOSED CONTOUR
-  TRUNK STORM SEWER SYSTEM  
SEE (CDR183) FOR STORM IN FONTAINE BLVD.
-  LORSON RANCH EAST FILING NO. 2  
FINAL PLAT SITE AREA



**CORE ENGINEERING GROUP**  
 15004 15th Avenue S.E.  
 P.O. Box 719 570 110  
 CONTACT: RICHARD L. SCHINDLER, P.E.  
 EMAIL: Rich@cegi.com



DATE: \_\_\_\_\_  
 DESCRIPTION: \_\_\_\_\_  
 NO. \_\_\_\_\_  
 PROJECT: LORSON RANCH EAST  
 EAST OF THE EAST TRIBUTARY  
 EL PASO COUNTY, COLORADO  
 PREPARED FOR: LORSON LLC  
 212 NORTH WAHATCH AVE, SUITE 301  
 COLORADO SPRINGS, COLORADO 80903 (719) 635-3200  
 CONTACT: LEF MARK

DRAWN: RLS  
 DESIGNED: RLS  
 CHECKED: RLS

**INTERIM HYDROLOGICAL CONDITIONS**  
**LORSON RANCH EAST FILING NO. 2**  
**BASIN "C"**

DATE: SEPT 15, 2018  
 PROJECT NO. 100.044  
 SHEET NUMBER 1  
 TOTAL SHEETS: 1

### TEMPORARY SEDIMENT BASINS

- TEMP SED. BASIN EX-3.1, BTM=5741, TOP=5743, 36" STANDPIPE TOP=5742.00, 100-YR WSEL=5742.69, 100-YR FLOW=18cfs, VOLUME=1162cf
- TEMP SED. BASIN EX-3.2, BTM=5746, TOP=5749, 48" STANDPIPE TOP=5747.50, 100-YR WSEL=5748.37, 100-YR FLOW=67cfs, VOLUME=2170cf

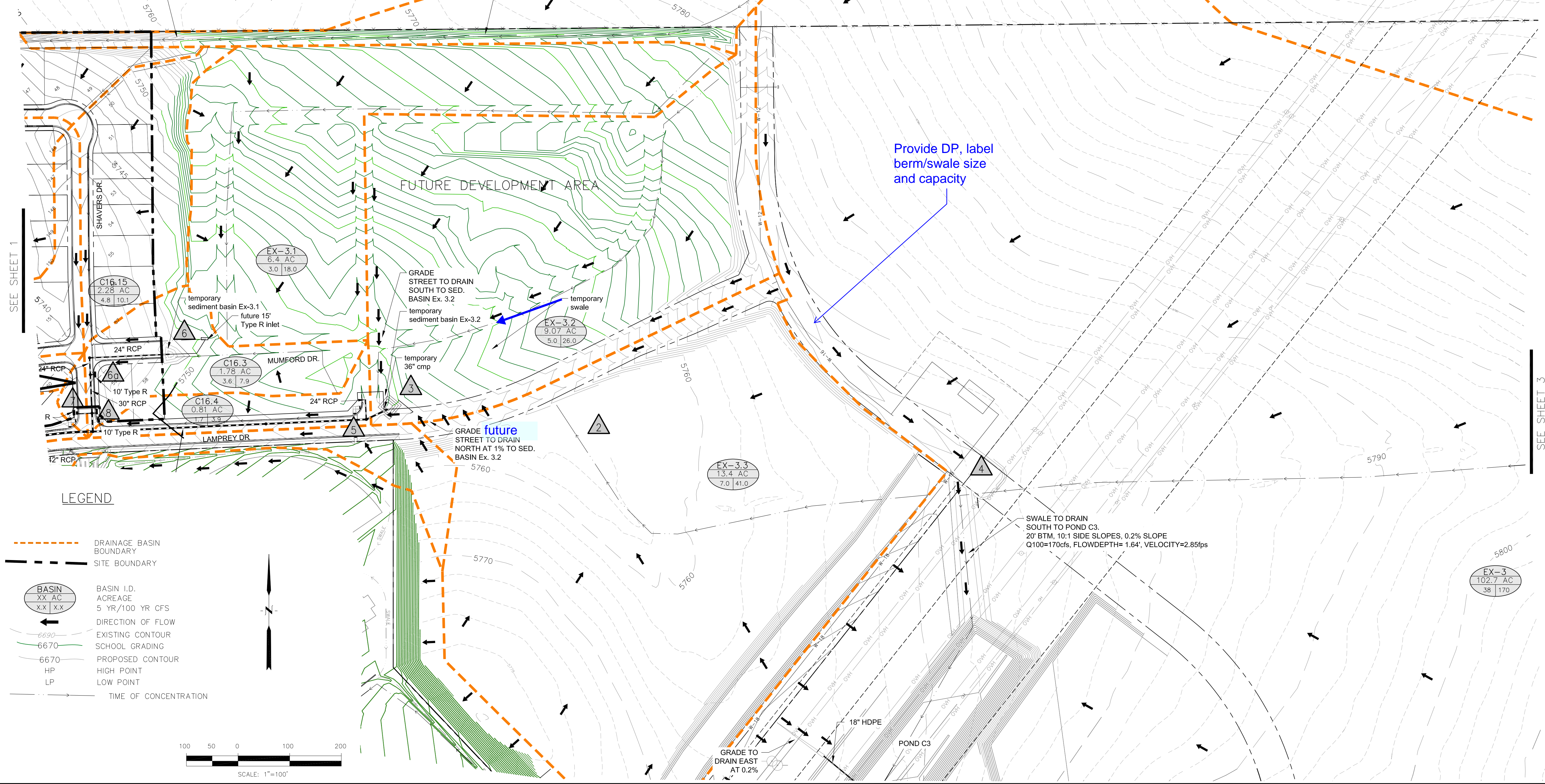
RUNOFF SUMMARY			
DESIGN POINT	5 YEAR	100 YEAR	NOTES
2	7.0	41.0	
4	38.0	170.0	

TH DIVERSION SWALE (TRM)  
vale, 2.5' deep, 4.5% slope, 3:1 sides

NORTH DIVERSION SWALE (TRM)  
"V" swale, 2.5' deep, 6.5% slope, 3:1 sides

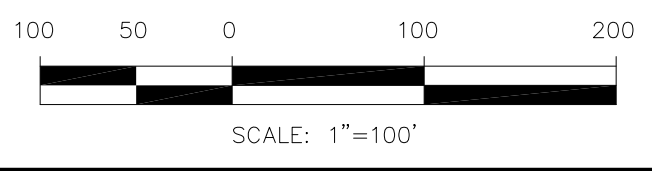
NORTH DIVERSION SWALE  
"V" swale, 2.5' deep, 1% slope (MIN), 3:1 sides

Provide DP, label  
berm/swale size  
and capacity



#### LEGEND

- DRAINAGE BASIN BOUNDARY
- SITE BOUNDARY
- BASIN  
XX AC  
X.X | X.X BASIN I.D.  
ACREAGE  
5 YR/100 YR CFS
- DIRECTION OF FLOW
- EXISTING CONTOUR
- SCHOOL GRADING
- PROPOSED CONTOUR
- HP HIGH POINT
- LP LOW POINT
- TIME OF CONCENTRATION



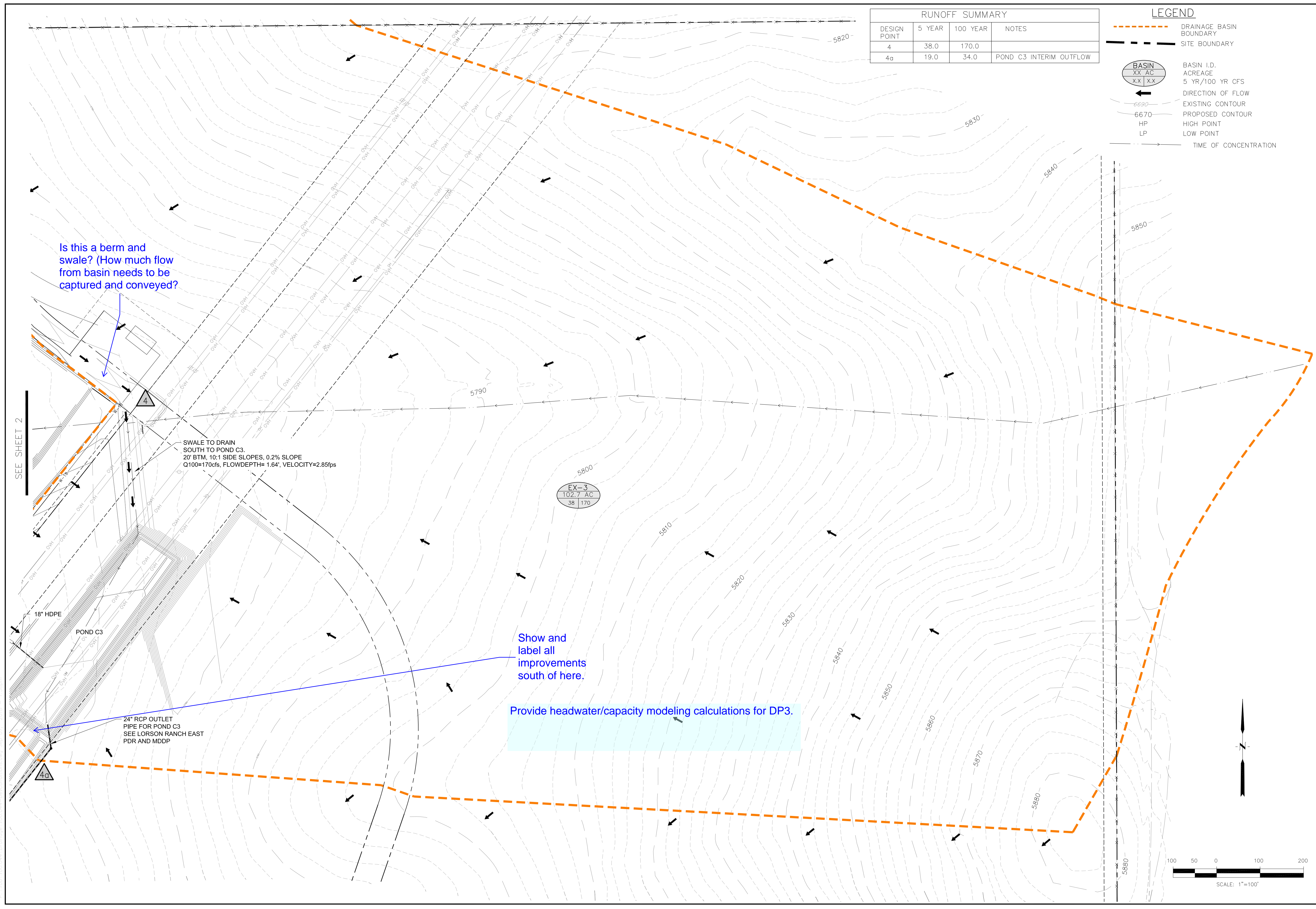
**CORE ENGINEERING GROUP**  
15004 1ST AVE. S.  
BURNSVILLE, MN 55306  
PH: 719.570.1100  
CONTACT: RICHARD L. SCHINDLER, P.E.  
EMAIL: Rich@cegi.com

DATE: \_\_\_\_\_  
DESCRIPTION: \_\_\_\_\_  
NO. \_\_\_\_\_  
PROJECT: LORSON RANCH EAST FILING NO. 2  
PREPARED FOR: LORSON, LLC  
212 N. WASHATCH AVE. SUITE 301  
FONTAINE BLVD. EAST, PUEBLO, CO 81003  
EL PASO COUNTY, COLORADO  
CONTACT: JEFF MARK

DRAWN: RLS  
DESIGNED: LAB  
CHECKED: LAB

DEVELOPED CONDITIONS  
DRAINAGE PLAN  
LORSON RANCH EAST FILING NO. 2

DATE: SEPTEMBER 15, 2018  
PROJECT NO.: 100.044  
SHEET NUMBER: 2  
TOTAL SHEETS: 3



RUNOFF SUMMARY			
DESIGN POINT	5 YEAR	100 YEAR	NOTES
4	38.0	170.0	
4a	19.0	34.0	POND C3 INTERIM OUTFLOW

**LEGEND**

- DRAINAGE BASIN BOUNDARY
- SITE BOUNDARY
- BASIN I.D. ACREAGE
- 5 YR/100 YR CFS
- DIRECTION OF FLOW
- EXISTING CONTOUR
- PROPOSED CONTOUR
- HIGH POINT
- LOW POINT
- TIME OF CONCENTRATION

**CORE ENGINEERING GROUP**  
 15004 1ST AVE. S.  
 BURNSVILLE, MN 55306  
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 CONTACT: RICHARD L. SCHINDLER, P.E.  
 EMAIL: Rich@cegy.com

DATE: \_\_\_\_\_  
 DESCRIPTION: \_\_\_\_\_  
 NO. \_\_\_\_\_  
 PROJECT: LORSON RANCH EAST FILING NO. 2  
 PREPARED FOR: LORSON, LLC  
 212 N. WASHATCH AVE. SUITE 301  
 COLORADO SPRING, COLORADO 80903  
 CONTACT: JEFF MARK

DRAWN: RLS  
 DESIGNED: LAB  
 CHECKED: LAB

**DEVELOPED CONDITIONS  
 DRAINAGE PLAN  
 LORSON RANCH EAST FILING NO. 2**

DATE: SEPTEMBER 15, 2018  
 PROJECT NO.: 100.044  
 SHEET NUMBER: 3  
 TOTAL SHEETS: 3

SEE SHEET 2

Is this a berm and swale? (How much flow from basin needs to be captured and conveyed?)

SWALE TO DRAIN SOUTH TO POND C3.  
 20' BTM, 10:1 SIDE SLOPES, 0.2% SLOPE  
 Q100=170cfs, FLOWDEPTH=1.64', VELOCITY=2.85fps

24" RCP OUTLET PIPE FOR POND C3  
 SEE LORSON RANCH EAST PDR AND MDDP

Show and label all improvements south of here.

Provide headwater/capacity modeling calculations for DP3.

