

Please title this as Final Drainage Report. Per DCM a drainage letter is only allowed where a complete drainage report has been previously approved.

**DRAINAGE LETTER FOR
MOUNTAIN STATES PIPE AND SUPPLY
ELY 631.22 FT OF TRACT 5 AKERS ACRES SUB NO 1, EX THAT PT TO
COUNTY BY REC #210051876
7765 ELECTRONIC DRIVE
COLORADO SPRINGS, COLORADO**

JANUARY 2020

Prepared For:
MOUNTAIN STATES PIPE AND SUPPLY
Attn: Paul Carroll
7765 Electronic Drive
Colorado Springs, Colorado
719.475.4020

Prepared By:
TERRA NOVA ENGINEERING, INC.
721 S. 23RD STREET
Colorado Springs, CO 80904
719.635.6422

TNE Job No. 1913.00
County Job No. #####

VR204

**DRAINAGE LETTER FOR
MOUNTAIN STATES PIPE AND SUPPLY
ELY 631.22 FT OF TRACT 5 AKERS ACRES SUB NO 1, EX THAT PT TO
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DESIGN ENGINEER'S STATEMENT:

The attached drainage plan and report were prepared under my direction and supervision and are correct to the best of my knowledge and belief. Said drainage report has been prepared according to the criteria established by the County for drainage reports and said report is in conformity with the applicable master plan of the drainage basin. I accept responsibility for any liability caused by any negligent acts, errors or omissions on my part in preparing this report.

Dane Frank, P.E. 50207
On behalf of Terra Nova Engineering, Inc.

Date

OWNER/DEVELOPER'S STATEMENT:

I, the owner/developer have read and will comply with all of the requirements specified in this drainage report and plan.

Authorized Signature

Date

Printed Name, Title

Business Name

Address

EL PASO COUNTY:

Filed in accordance with the requirements of the Drainage Criteria Manual, Volumes 1 and 2, El Paso County Engineering Criteria Manual and Land Development Code as amended.

Jennifer Irvine, P.E.
County Engineer / ECM Administrator

Date

Conditions:

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PURPOSE AND JUSTIFICATION

The purpose of this Drainage Letter is to identify and analyze the existing drainage patterns, determine existing runoff quantities, and analyze the effects of the replat on drainage patterns. This parcel has previously been platted and has previously been studied in:

Please revise to final drainage report

“Preliminary and Final Drainage Report for TMC Design Corporation”, dated December 2011, prepared by Stillwater Engineering

There is no record that this report was ever approved by the County. Please provide a statement regarding this.

GENERAL DESCRIPTION

This Drainage Letter for “MOUNTAIN STATES PIPE AND SUPPLY”, located at 7765 Electronic Drive, is an analysis of an approximately 12.15 ac drainage basin. The site is platted as ELY 631.22 FT OF TRACT 5 AKERS ACRES SUB NO 1, EX THAT PT TO COUNTY BY REC #210051876; with the eastern portion of the parcel already developed and the western portion of the parcel undeveloped. No development of changes to the existing drainage conditions are proposed with the replat.

The site is in the southeast quarter of Section 32, Township 13 South, Range 65 West of the 6th Principal Meridian within El Paso County. The parcels are bounded to the north by Electronic Drive, to the east by Marksheffel Road, to the south by LOT 6 AKERS ACRES SUB 1, EX THAT PT CONV TO COUNTY FOR R/W BY REC #210004057, and to the west by WLY 631.22 FT OF TRACT 5 AKERS ACRES SUB NO 1. (See vicinity map, Appendix).

The site lies within the Sand Creek Basin, with storm runoff draining from the southeast corner of the site, and flowing south, then west, before entering Sand Creek.

Sand Creek is east of marksheffel.

Please elaborate on your description of the existing pond. Is it only receiving runoff from lot 1? What is the outfall of the pond? etc. The narrative should indicate that the existing pond is functioning per criteria/adequately.

The site consists of 89% Blakeland loamy sand (hydrologic group "A") and 11% Blendon sandy loam (hydrologic group "B") per the USDA, NRCS web soil survey. The hydrologic group "A" was used to represent the soil types and determine the onsite basin overland flow. (See map in appendix)

The study area consists of roughly half developed land with a structure, paved parking area, paved driveway and turn around, and an existing stormwater pond. The remaining roughly half of the study area is undeveloped and is mostly grass and dirt surfaces, with a small number of trees. The site drains to the southeast, with an average slope of 6.1%.

EXISTING DRAINAGE CONDITIONS

There is one existing building and stormwater pond in the southeast corner of the site. There is also a small drainage swale on the south side of Electronic Drive, which is in the right of way.

The existing drainage basin and flow values are from the December 2011 Preliminary and Final Drainage Report. No significant drainage changes appear to have been made to the site since the time this report was prepared.

Does any flow from the swale enter the site? There are culverts shown at the driveways yet no mention of them in your report. Please elaborate on the drainage conditions of the site.

There are three drainage basins, one of which (Basin 2S) is entirely offsite, and one of which (Basin 3S) is partially offsite. See attached Existing Drainage Map (in appendix).

Basin P 1S is 2.66 acres and drains to Design Point 1 at the existing stormwater pond. Basin P 1S has flows of $Q_5 = 4.08$ cfs and $Q_{100} = 6.19$ cfs.

Per the drainage plan it appears that the runoff in the pond drains to an inlet/outlet structure and then a storm sewer that goes south. Please include information regarding the outfall of the pond.

Basin 2S is 5.49 acres and drains to Design Point 2 near the east end of Electronic Drive. Basin 2S has flows of $Q_5 = 7.69$ cfs and $Q_{100} = 11.67$ cfs.

Please indicate where the design points discharge to.

Basin 3S is 4.00 acres and drains to Design Point 3 at the southeast corner of the site. Basin 3S has flows of $Q_5 = 5.60$ cfs and $Q_{100} = 8.50$ cfs.

There is no record of this drainage report ever being approved. You may compare and reference this report but you shall provide your analysis/design calculations for the existing drainage conditions. Please revise/update the design accordingly.

PROPOSED DRAINAGE CONDITIONS

As no development of changes to drainage patterns are proposed as part of the replat, the existing and proposed drainage conditions are the same.

HYDROLOGIC CALCULATIONS

The hydrologic calculations discussed in this Drainage Letter are from the December 2011 drainage report.

HYDRAULIC CALCULATIONS

Not applicable.

See previous comment and update accordingly.

WATER QUALITY

As no changes to the existing drainage conditions are proposed, no water quality treatment or flood control detention is required.

Please also indicate that no development or land disturbance is proposed.

EROSION CONTROL

As no grading is proposed, no erosion control measures have been included.

CONSTRUCTION COST OPINION

Not applicable.

Although the site was previously platted, per ECM appendix L section 3.13a drainage fees are applicable if there is an increase in impervious acreage. As this new lot will be developed, drainage fees are required. Table 3-1 of appendix L has typical values of percent impervious for the type of development. Please revise the drainage fees section accordingly.

DRAINAGE FEES

As the site has previously been platted, no drainage fees are required.

MAINTENANCE

Not applicable.

Please provide language in your narrative that when the new lot develops it will have to address water quality/detention. Also be sure to indicate that if the proposed development impacts and/or drains to the existing pond then the existing pond may need to be retrofitted to meet current standards.

SUMMARY

Replating of this site will not adversely affect the surrounding development. The existing and proposed drainage conditions are the same. No grading is proposed as part of this replat. Water quality is not required due to the existing and proposed drainage conditions being the same.

water quality is not required as there is no land disturbance that is proposed and therefore it is not an applicable construction activity. Revise accordingly.

PREPARED BY:
TERRA NOVA ENGINEERING, INC.

Dane Frank, P.E.
Project Engineer

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BIBLIOGRAPHY

El Paso County Drainage Criteria Manual-Volumes 1 & 2, latest edition

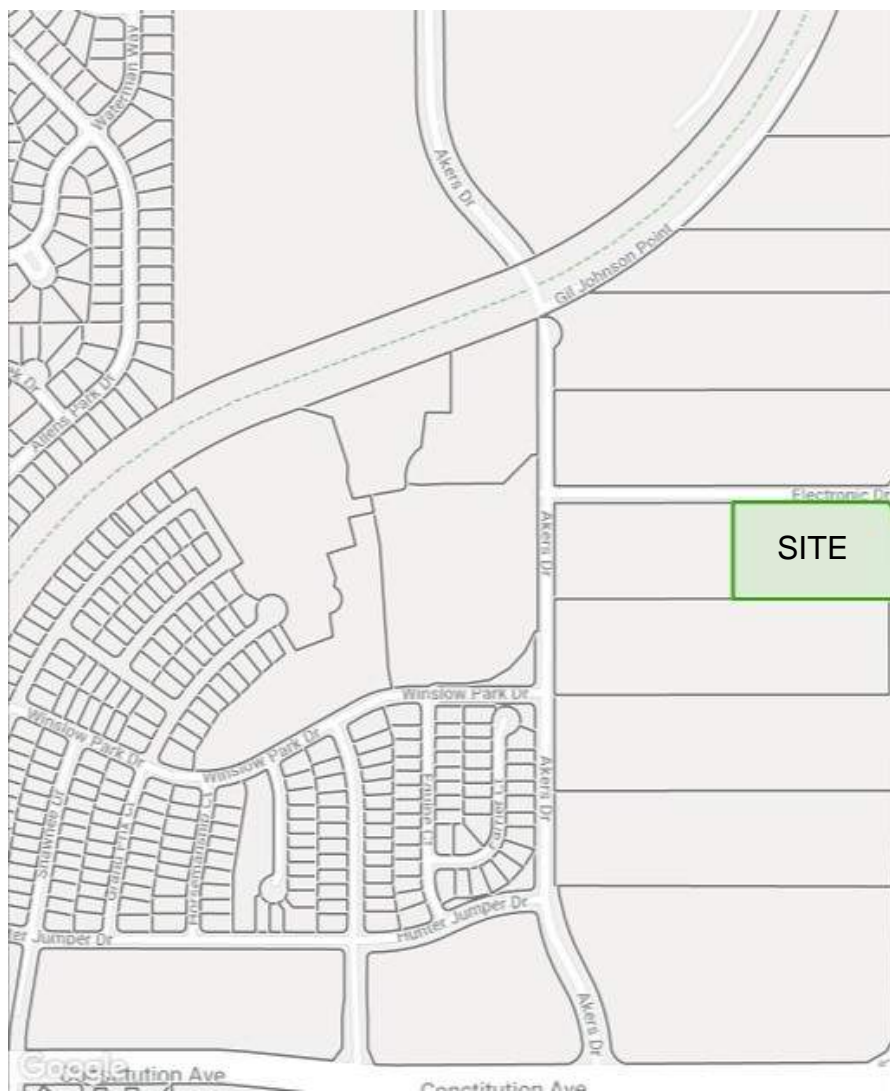
El Paso County Board Resolution No 15-042 (Adoption of Chapter 6 and Section 3.2.1 Chapter 13 of the City of Colorado Springs Drainage Criteria Manual dated May 2014, Hydrology and Full Spectrum Detention)

Preliminary and Final Drainage Report for TMC Design Corporation, dated December 2011, prepared by Stillwater Engineering

VICINITY MAP

El Paso County - Community: Property Search
Schedule Number: 5332002019

Mountain States Pipe
Vicinity Map



GENERAL LOCATION MAP

Mountain States Pipe

General Location Map - Image Dated Oct 2018

Electronic Dr

SITE

Marksheffel Rd

Google Earth

© 2018 Google

300 ft



PAGES FROM DECEMBER 2011 DRAINAGE REPORT



PRELIMINARY AND FINAL DRAINAGE REPORT
FOR
TMC DESIGN CORPORATION

DECEMBER 2011

PREPARED FOR:
TMC DESIGN CORPORATION
COLORADO SPRINGS, CO



stillwater engineering



CONSULTING ENGINEERS AND SURVEYORS

EXISTING DRAINAGE CONDITIONS

The entire area is in general considered light industrial with some unimproved scorched earth. The north "BASIN 2S" drains approximately 5.49 Acres. The total run off for the 10 year event is 7.98 cfs and total runoff for the 100 year is 20.38 cfs. The total volume of water in a 10 year event is 0.659 Acre Feet and the 100 year is 1.685 Acre Feet. BASIN 2S is an offsite flow that enters a ditch that runs along the North of the property. The existing ditch is adequate for these flows, however the ditch does need some manicure work to remove sediment and an attempt must be made to re-acquire control of the vegetation. Doing so will ensure a more consistent clean flow.

Basin 3S is east of the improvements and spans over this property and the next to the west. No meaningful improvements in this basin are proposed. The gravel truck parking area shown on the drawings will at most, improve the drainage situation. Portions of asphalt in this basin have been added to the proposed BASIN P 1S. Thus, no changes have been made to this basin and so no developed flow has been calculated. None the less, BASIN 3S drains approximately 4.0 Acres. The total run off for the 10 year event is 5.81 cfs for the 10 year and the 100 year is 8.50 cfs. The total volume of water coming from this basin is 0.462 Acre Feet for the 10 year and 0.703 Acre Feet for the 100 year.

BASIN H 1S Has the existing building and parking area. Area of the building is 8,400 SF. Area of the Existing Parking is 7,800 SF. The area that is not yet developed is 99,800 SF This yields a total basin area of 116,000 SF or 2.66 Acres. Run off for this sub basin is 3.93 cfs for the 10 year and for the 100 year 8.90 cfs. The total volume of water coming from this basin is 0.288 Acre Feet for the 10 year and for the 100 year 0.736 Acre Feet.

PROPOSED DEVELOPED DRAINAGE

The only basin which required a developed flow to be calculated is basin H 1S. The developed basin is named P 1S and represents the asphalt paving being proposed for the site. In addition to the building and parking that is to remain, there shall be an additional 11,000 SF of parking, as well as 13,00 SF of new drive way. The net land that will then be undeveloped is reduced to 75,300 SF. Run off for this basin is 3.53 cfs for the 10 year and for the 100 year 9.03 cfs. The total volume of water coming from this basin is 0.292 Acre Feet for the 10 year and for the 100 year 0.746 Acre Feet.

The 100 year difference is 0.13 cfs. Or a net volume of water change of 0.17 Acre Feet for the 100 year. A detention basin to handle the additional 0.13 cfs is approximately 0.16 Acre Feet. Do to the extreme small size, the detention facility could act as a dual

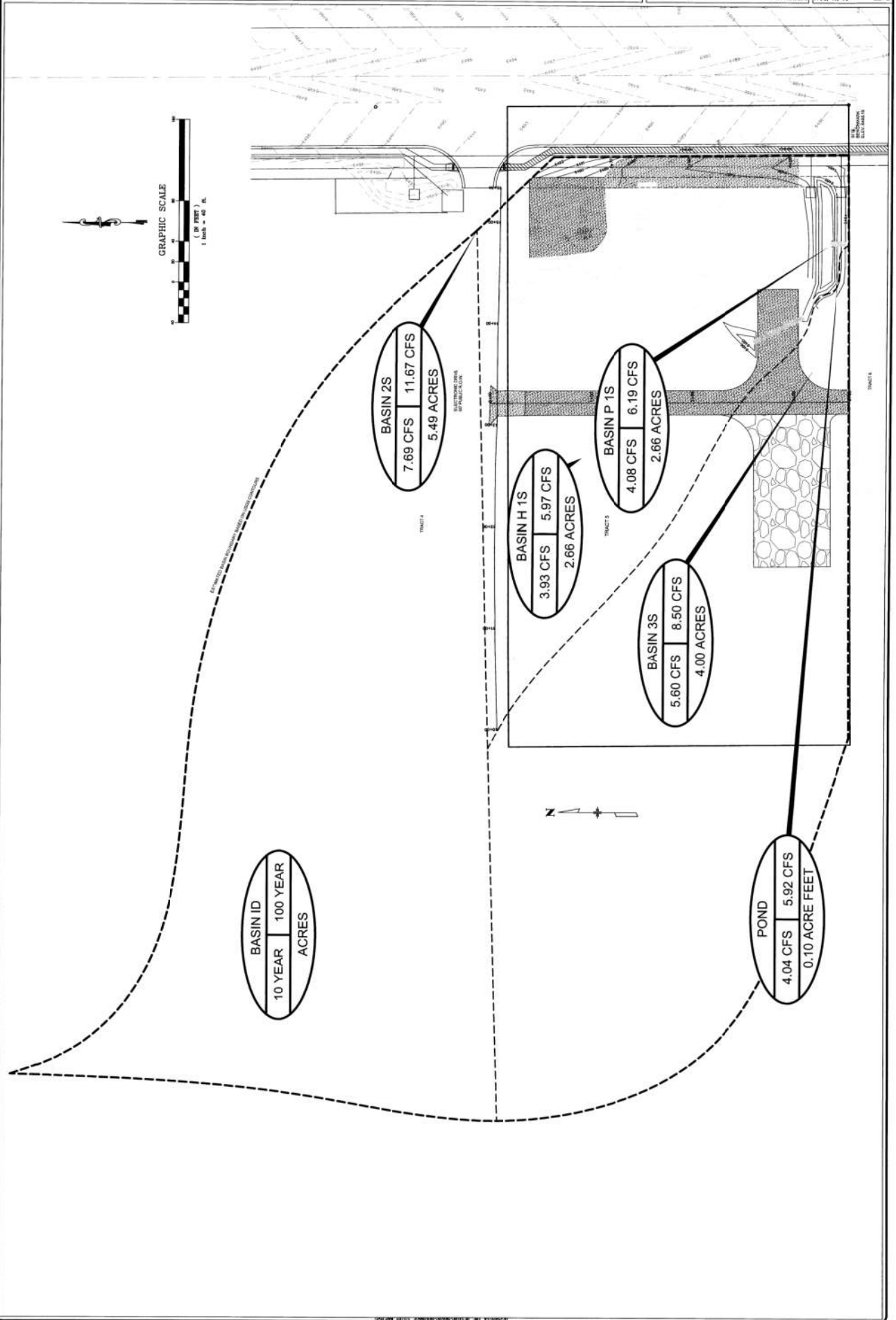
use as both a water quality pond and a detention pond. A channel should outlet from the pond that is, 1.2 feet in width, and 2 feet tall. An emergency spillway that leads directly to the curb and gutter of Marksheffel from the detention pond should handle the full 9.03 cfs.

11/11/11

stillwater engineering
CONSULTING ENGINEERS
AND SURVEYORS
225 COLORADO AVENUE
DENVER, CO 80202
719-543-1941, 543-1944 FAX

EXISTING AND PROPOSED DRAINAGE
TMC DESIGN CORPORATION PROPOSED RECONFIGURATION
COLORADO SPRINGS, EL PASO COUNTY, COLORADO

DATE: 01/11/2011
DRAWN BY: DAD
CHECKED BY: DAD
JOB NO.: 2009-14
SHEET NO.: 1 OF 1



DRAINAGE MAPS

MOUNTAIN STATES PIPE AND SUPPLY
DRAINAGE MAPS
EXISTING DRAINAGE MAP
JANUARY 2020

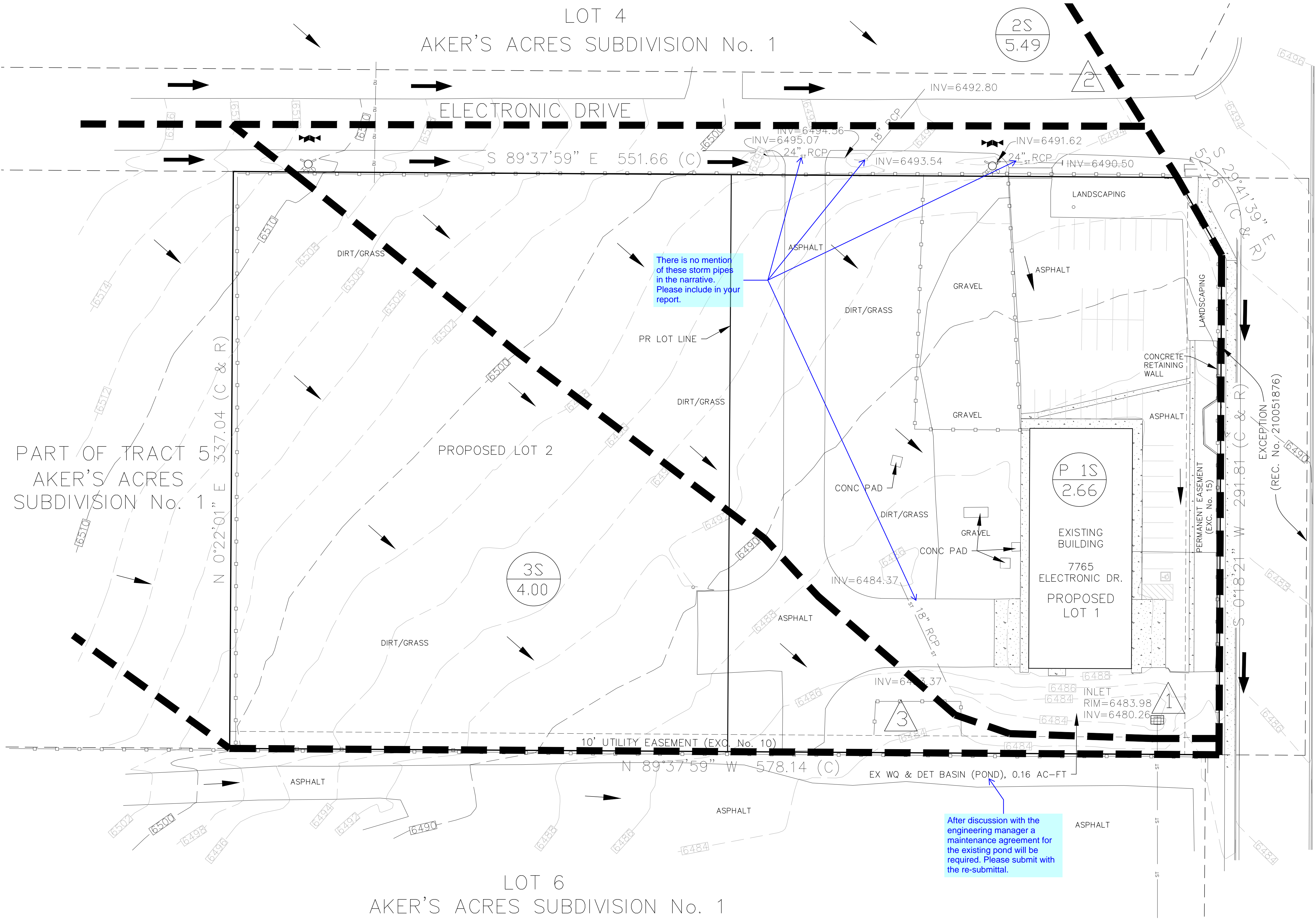
BASIN SUMMARY				
DESIGN POINT	BASIN	AREA (ACRES)	FLOW	
			5 YR (cfs)	100 YR (cfs)
1	P 1S	2.66	4.08	6.19
2	2S	5.49	7.69	11.67
3	3S	4.00	5.60	8.50

LEGEND

- BASIN DESIGNATION
12.22 AREA IN BASIN (AC)
- DESIGN POINT
- BASIN BOUNDARY
- EXISTING 1' CONTOUR
- EXISTING 10' CONTOUR
- GROUND SURFACE FLOW DIRECTION
- ROAD AND DITCH FLOW DIRECTION
- CHAIN-LINK FENCE

NOTES

1. ALL FEATURE SHOWN ARE EXISTING.
2. NO GRADING CHANGES ARE INCLUDED IN THIS PLAN.
3. THE DRAINAGE BASINS FLOW VALUES SHOWN ARE FROM THE PRELIMINARY AND FINAL DRAINAGE REPORT FOR TMC DESIGN CORPORATION, DATED DECEMBER 2011, PREPARED BY STILLWATER ENGINEERING. NO SIGNIFICANT DRAINAGE CHANGES APPEAR TO HAVE BEEN MADE TO THE SITE SINCE THE TIME THIS REPORT WAS PREPARED.



REVISIONS

NO.	DESCRIPTION	DATE

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE ENGINEER, THESE DRAWINGS ARE NOT TO BE USED FOR ANY OTHER PURPOSE WITHOUT WRITTEN AUTHORIZATION.

PREPARED FOR:
MOUNTAIN STATES PIPE...
ATTN: PAUL CARROLL
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MOUNTAIN STATES PIPE AND SUPPLY

EXISTING DRAINAGE MAP

DESIGNED BY DLF
DRAWN BY DLF
CHECKED BY LD

H-SCALE AS SHOWN
V-SCALE N/A

JOB NO. 1913.00
DATE ISSUED 01/08/20
SHEET NO. 1 OF 1