



Planning and Community  
 Development Department  
 2880 International Circle  
 Colorado Springs, Colorado 80910  
 Phone: 719.520.6300  
 Fax: 719.520.6695  
 Website [www.elpasoco.com](http://www.elpasoco.com)

# DEVIATION REQUEST AND DECISION FORM

Updated: 6/26/2019

**March 25, 2020**

## PROJECT INFORMATION

Project Name:	Mountain View Academy
Schedule No.(s):	
Legal Description:	Tract H, Claremont Ranch Filing No. 4 as recorded under Reception No. 204062712 of the records of the El Paso County Clerk and Recorder, County of El Paso, State of Colorado, containing 7.884 Acres or 343,420 Square Feet, more or less.

## APPLICANT INFORMATION

Company:	Charter Development Company, LLC
Name:	Joe Sprys
Mailing Address:	c/o National Heritage Academies 3850 Broadmoor SE Grand Rapids, MI 49512
Phone Number:	(616) 929-1290
FAX Number:	N/A
Email Address:	JSprys@nhaschools.com

## ENGINEER INFORMATION

Company:	Merrick & Company
Name:	Scott A. Zimmermann, PE
Mailing Address:	5970 Greenwood Plaza Blvd. Greenwood Village, CO 80111
Phone Number:	(303) 353-3637
FAX Number:	N/A
Email Address:	Scott.Zimmermann@Merrick.com

## OWNER, APPLICANT, AND ENGINEER DECLARATION

To the best of my knowledge, the information on this application and all additional or supplemental documentation is true, factual and complete. I am fully aware that any misrepresentation of any information on this application may be grounds for denial. I have familiarized myself with the rules, regulations and procedures with respect to preparing and filing this application. I also understand that an incorrect submittal will be cause to have the project removed from the agenda of the Planning Commission, Board of County Commissioners and/or Board of Adjustment or delay review until corrections are made, and that any approval of this application is based on the representations made in the application and may be revoked on any breach of representation or condition(s) of approval.

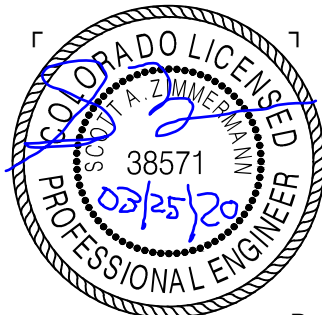
**(signed) Scott A. Zimmermann, PE**

**March 25, 2020**

Signature of owner (or authorized representative)

Date

Engineer's Seal, Signature  
 and Date of Signature



**DEVIATION REQUEST** (Attach diagrams, figures, and other documentation to clarify request)

A deviation from the standards in Appendix I, Section I.7.3 of the Engineering Criteria Manual (ECM) which states that WQCV ponds should be incorporated into Minor- and 100-Year Storm Stormwater Detention Structures is requested. This deviation request also applies to Chapter 13 of the Drainage Criteria Manual Vol. 1 Update (DCM v1 update) regarding full-spectrum ponds and EURV as well as Board of County Commissioners resolution 15-042 stating that the “most restrictive” requirements shall apply.

Identify the specific ECM standard which a deviation is requested:

While language varies across the various sources cited above, in general the Project seeks relief from having to provide stormwater flood attenuation in the form of a full-spectrum detention pond at this proposed school site.

State the reason for the requested deviation:

The drainage design provides for ample WQCV treatment, in accordance with current El Paso design standards and requirements.

As described in the approved *Final Drainage Report for Claremont Ranch, Filing 4* (Matrix Design Group, Inc, June 2003), regional detention in the form of 10-year and 100-year attenuation was provided on the East Fork Sand Creek in accordance with the *Sand Creek Drainage Basin Planning Study, Preliminary Design Report, City of Colorado Springs, El Paso County, Colorado* (Kiowa Engineering Corp, January 1993, rev'd March 1996).

Given the required flood reduction detention volumes were provided at a regional level, the site, always intended for a school, was not left with site conditions that would accommodate a full-spectrum pond. More specifically, the provided storm sewer tie-in invert provided by the developer at the south end of the site is just over 4' below the top of the adjacent inlet which is barely enough room to build adequate staging intervals required for WQCV, as well as freeboard, micropool, etc. There is physically not enough vertical room to add EURV and 100-Year flood attenuation storage on top of the WQCV, no matter how much the pond is expanded horizontally. We have attached a copy of the cross section of our WQCV pond, as originally proposed, which shows the vertical relationship between the provided storm sewer and the adjacent street.

Serial detention may violate Colorado SB15-212 which requires that 99% of all detained stormwater in excess of the five-year event must be released within 120 hours after the end of the rainfall event. {37-92-602 (8)(C)}. Serial flood attenuation may violate this statute.

Lastly, we are of the opinion that a full spectrum pond (roughly 7-8 feet deep), even if it were possible, would pose an “attractive nuisance” to students while simultaneously providing a life-safety hazard and concern.

Explain the proposed alternative and compare to the ECM standards (May provide applicable regional or national standards used as basis):

Recognizing this, we proposed a compromise measure with our most recently submitted Preliminary Drainage report that was a part of our EGP-202 submittal package. In it, we proposed to provide WQCV based on the entire site area, equating to 7.88 acres.

The “over-detention” for the WQCV calculated on 7.88 acres equates to a volume of 0.21 acre-feet. If we were to calculate the WQCV solely on tributary areas (Basins P1, R1) consisting of the parking lot and building roof top, we arrive at a 0.12 acre-foot WQCV requirement for the 4.48 tributary acres while the EURV totaled 0.47 acre-feet.

While not ideal, the compensating “over detention” provides twice the minimum required WQCV and roughly half the specified EURV while making full available use of the stage / storage available based on the existing storm sewer invert and top-back-of inlet (overflow point).

Copies of the MHFD Detention spreadsheets highlighting the above results are included as an attachment.

## LIMITS OF CONSIDERATION

(At least one of the conditions listed below must be met for this deviation request to be considered.)

- The ECM standard is inapplicable to the particular situation.
- Topography, right-of-way, or other geographical conditions or impediments impose an undue hardship and an equivalent alternative that can accomplish the same design objective is available and does not compromise public safety or accessibility.
- A change to a standard is required to address a specific design or construction problem, and if not modified, the standard will impose an undue hardship on the applicant with little or no material benefit to the public.

Provide justification:

The depth of the storm sewer at the provided tie-in point does not allow for the stage-range required for a fully functioning full-spectrum pond. Previous design of the surrounding development provided for flood attenuation requirements in effect at the time (10-year and 100-year). The site will still be served by the regional detention facility as described in the *Final Drainage Report for Claremont Ranch, Filing 4*. The engineer has worked with the available stage / storage to provide compensatory over-detention equating to roughly twice the required WQCV and ½ the specified EURV volume. Serial flood attenuation, as suggested, may violate SB15-212 and if a full-spectrum pond were possible, it would be of a size, depth, and release regimen that could prove to be a life-safety hazard for young students who would naturally be attracted to such a feature.

## CRITERIA FOR APPROVAL

Per ECM section 5.8.7 the request for a deviation may be considered if the request is not based exclusively on financial considerations. The deviation must not be detrimental to public safety or surrounding property. The applicant must include supporting information demonstrating compliance with all of the following criteria A) through F):

A) The deviation will achieve the intended result with a comparable or superior design and quality of improvement.

Undetained 100-year runoff from the site will be captured by adjacent inlets and storm sewer, which have sufficient interception and carrying capacity. The design engineer has made full use of the available stage / storage in an effort to provide "over detention" at the WQCV level equating to approximately twice the required WQCV, while reaching half the desired EURV goal. With flood attenuation for the entire surrounding community being provided at the regional level, there should be no degradation in the drainage design or performance for this site.

B) The deviation will not adversely affect safety or operations

The WQCV pond, as currently proposed, is very long and narrow with limited depth. The slow release regimen of a WQ pond is such that an individual getting "stuck" or "pinned" against the outlet structure is not a consideration.

A full spectrum pond serving this site would need to be nearly 3 times bigger and likely twice as deep. Any students caught in the middle when the pond is full would be unreachable from shore in water over their heads. Furthermore, the outlet structure on a full-spectrum pond would be much larger, making it more attractive to youngsters, as well as taller, with the potential for students to be trapped or pinned down when the pond was operating in its flood water release ranges.

C) The deviation will not adversely affect maintenance and its associated cost.

By its very nature, the WQCV pond area, depth, and release structure is smaller than that typical of a full-spectrum pond, thus making maintenance easier. Ease of maintenance equates to reduced costs.

D) The deviation will not adversely affect aesthetic appearance.

As designed and sited, the pond is very long and narrow, while lying below adjacent roadways (i.e. not a "perched" pond with embankments, etc.). It is proposed to be screened from general view via the use of fast growing ornamental grasses that will require little to no-maintenance and irrigation. Appearances should not be a current concern, as it might be with a pond that is three times the size and twice the depth.

Even when full, as currently proposed, the long thin pond should mimic the appearance of a road-side borrow ditch or irrigation ditch, both of which are in common use here in Colorado.

E) The deviation meets the design intent and purpose of the ECM standards.

Between the regional detention provided for the surrounding development, the ample down-stream storm sewer capacity, the over-design on the WQCV, and the fact that full use of the available stage / storage relationship has been used, we feel strongly, and without reservation, that the design intent of the ECM, DCM, and other standards, references, and requirements have been met while best working within the constraints of the site.

F) The deviation meets the control measure requirements of Part I.E.3 and Part I.E.4 of the County's MS4 permit, as applicable.

The requested deviation does not affect Part I.E.3 (construction sites). No waiver or variance is requested in this regard. The developer intends to comply with all applicable environmental requirements. The requirements of Part I.E.4 is similarly not affected. As is generally the case, the developer intends to meet the WQCV standard for the entire site, with no deviations or variances therefrom.

**REVIEW AND RECOMMENDATION:**

**Approved by the ECM Administrator**

This request has been determined to have met the criteria for approval. A deviation from Section Res 15-042, FSD of the ECM is hereby granted based on the justification provided.



**Denied by the ECM Administrator**

This request has been determined not to have met criteria for approval. A deviation from Section \_\_\_\_\_ of the ECM is hereby denied.

**ECM ADMINISTRATOR COMMENTS / CONDITIONS:**

## **1.1. PURPOSE**

The purpose of this resource is to provide a form for documenting the findings and decision by the ECM Administrator concerning a deviation request. The form is used to document the review and decision concerning a requested deviation. The request and decision concerning each deviation from a specific section of the ECM shall be recorded on a separate form.

## **1.2 BACKGROUND**

A deviation is a critical aspect of the review process and needs to be documented to ensure that the deviations granted are applied to a specific development application in conformance with the criteria for approval and that the action is documented as such requests can point to potential needed revisions to the ECM.

## **1.3 APPLICABLE STATUTES AND REGULATIONS**

Section 5.8 of the ECM establishes a mechanism whereby an engineering design standard can be modified when if strictly adhered to, would cause unnecessary hardship or unsafe design because of topographical or other conditions particular to the site, and that a departure may be made without destroying the intent of such provision.

## **1.4 APPLICABILITY**

All provisions of the ECM are subject to deviation by the ECM Administrator provided that one of the following conditions is met:

- The ECM standard is inapplicable to a particular situation.
- Topography, right-of-way, or other geographical conditions or impediments impose an undue hardship on the applicant, and an equivalent alternative that can accomplish the same design objective is available and does not compromise public safety or accessibility.
- A change to a standard is required to address a specific design or construction problem, and if not modified, the standard will impose an undue hardship on the applicant with little or no material benefit to the public.

## **1.5 TECHNICAL GUIDANCE**

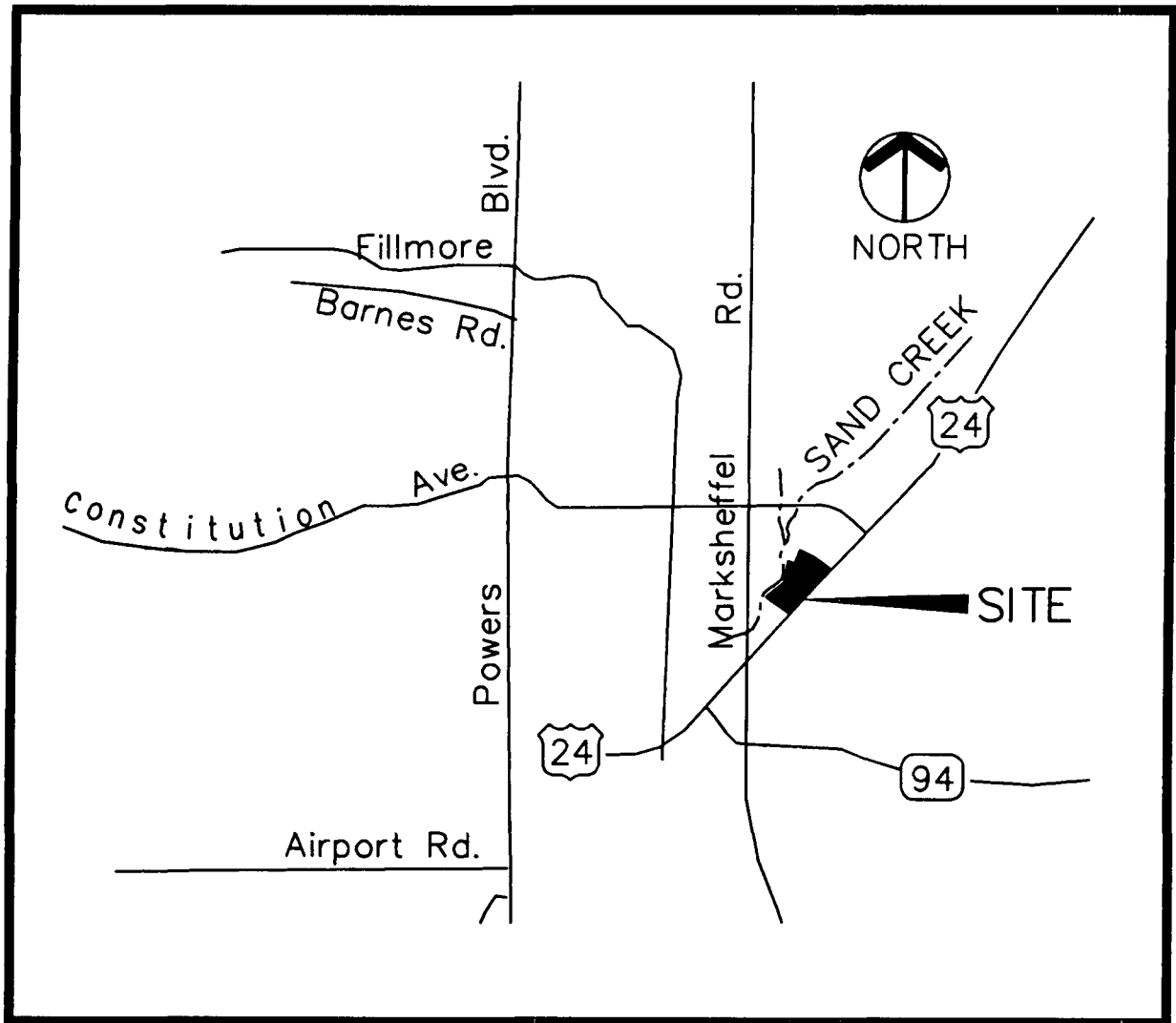
The review shall ensure all criteria for approval are adequately considered and that justification for the deviation is properly documented.

## **1.6 LIMITS OF APPROVAL**

Whether a request for deviation is approved as proposed or with conditions, the approval is for project-specific use and shall not constitute a precedent or general deviation from these Standards.

## **1.7 REVIEW FEES**

A Deviation Review Fee shall be paid in full at the time of submission of a request for deviation. The fee for Deviation Review shall be as determined by resolution of the BoCC



VICINITY MAP

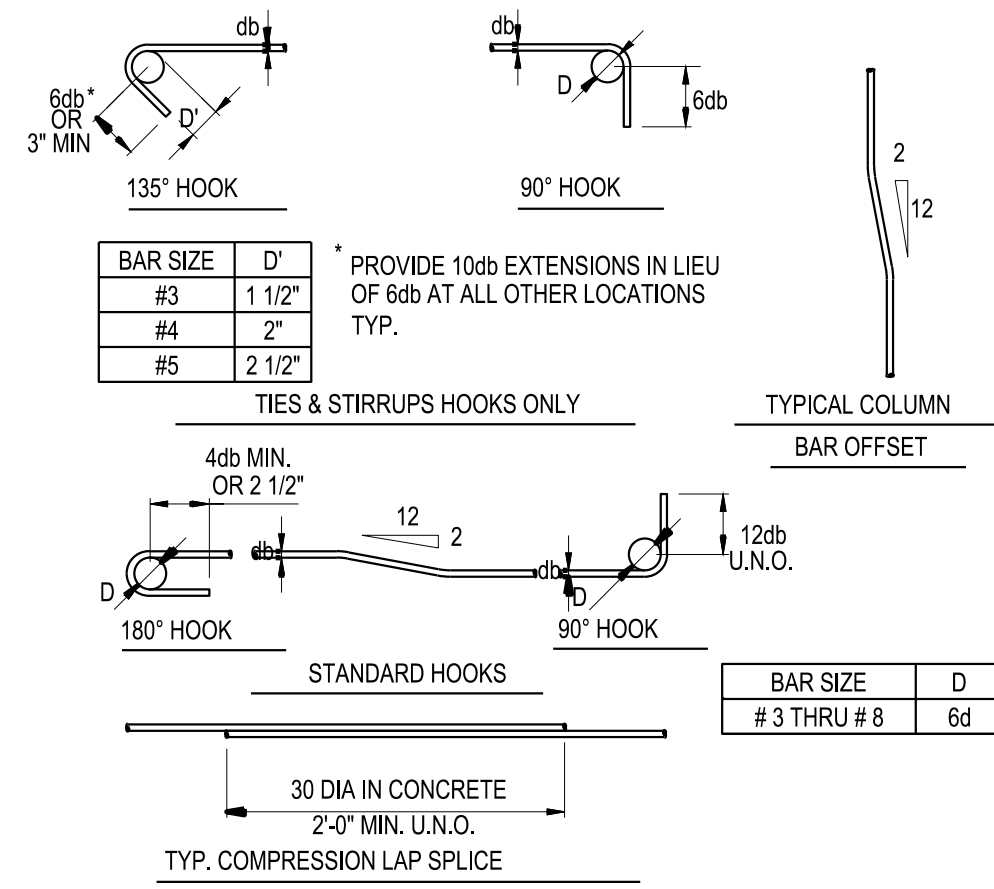
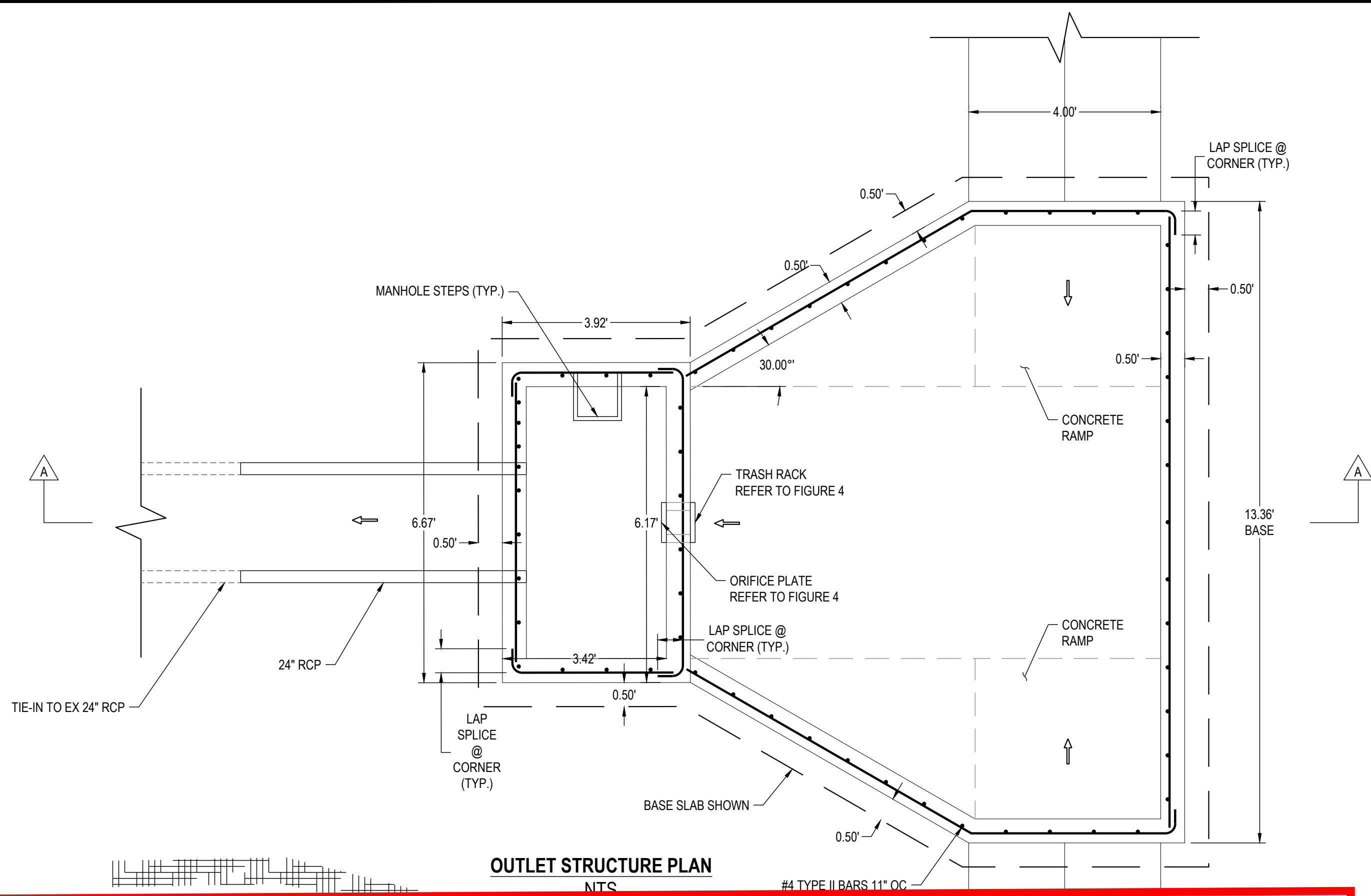


**Matrix Design Group, Inc.**  
Integrated Design Solutions

2925 Professional Place, Suite 202  
Colorado Springs, CO 80904  
Phone 719-575-0100  
Fax 719-575-0208

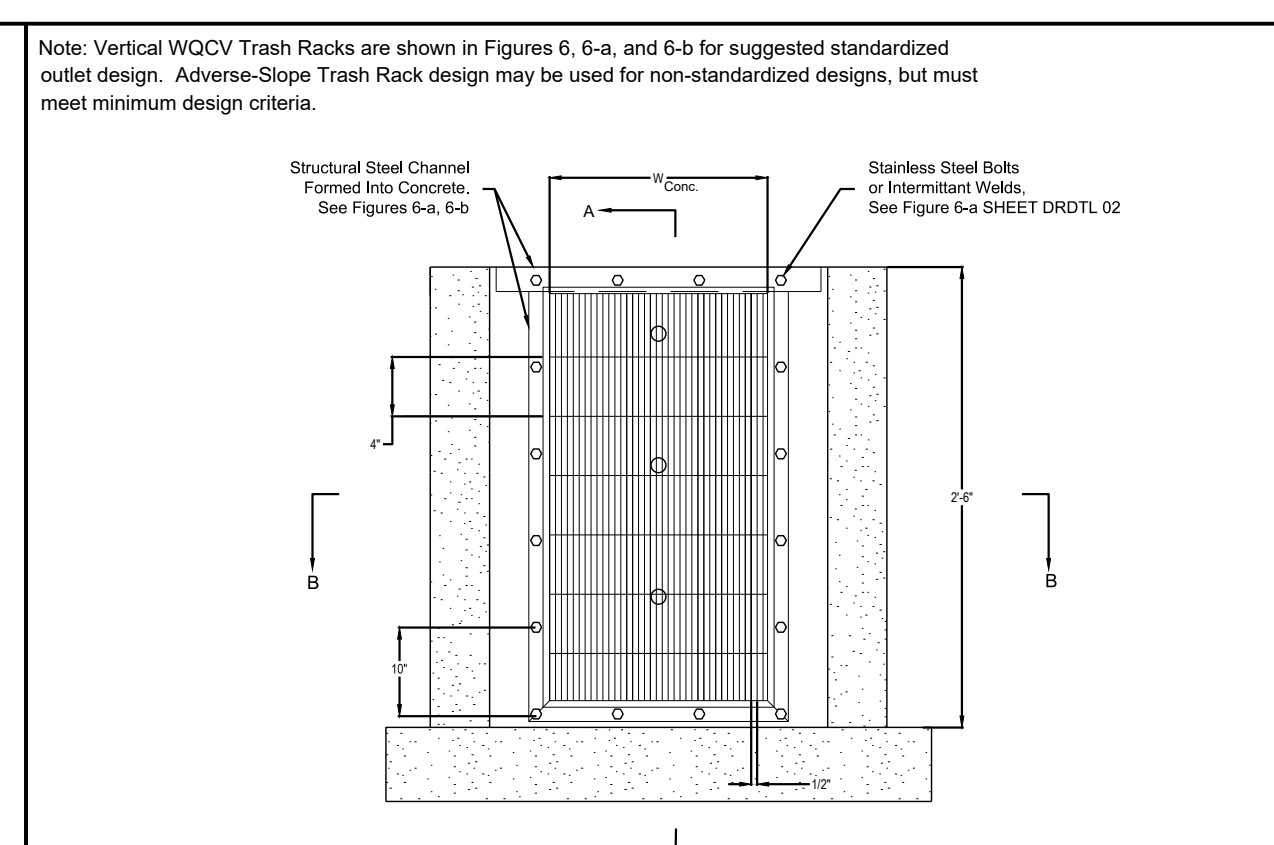
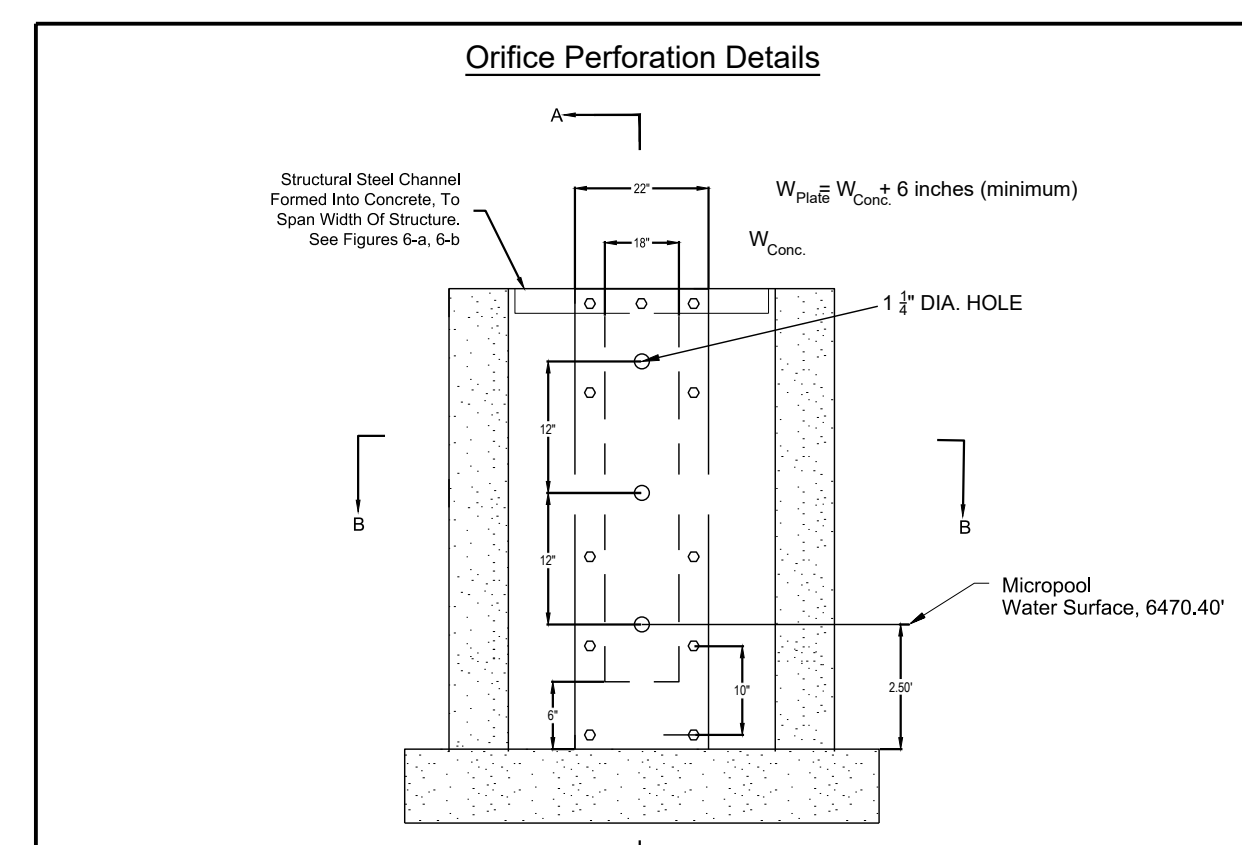
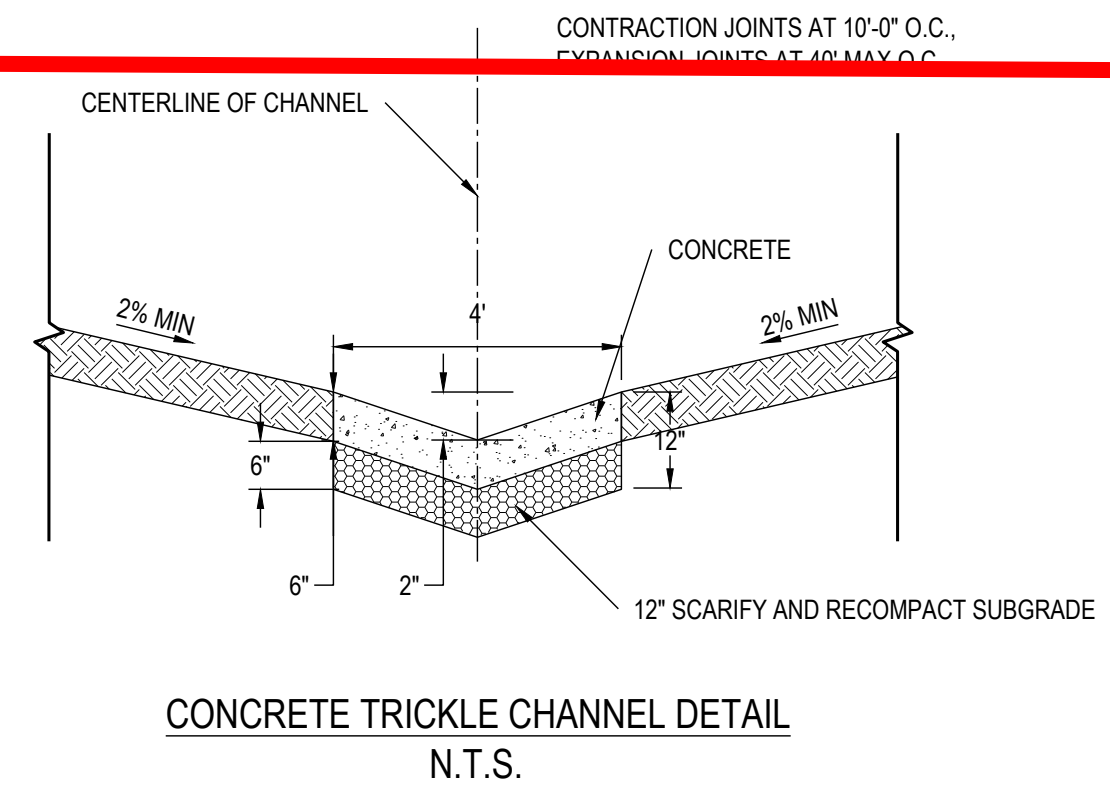
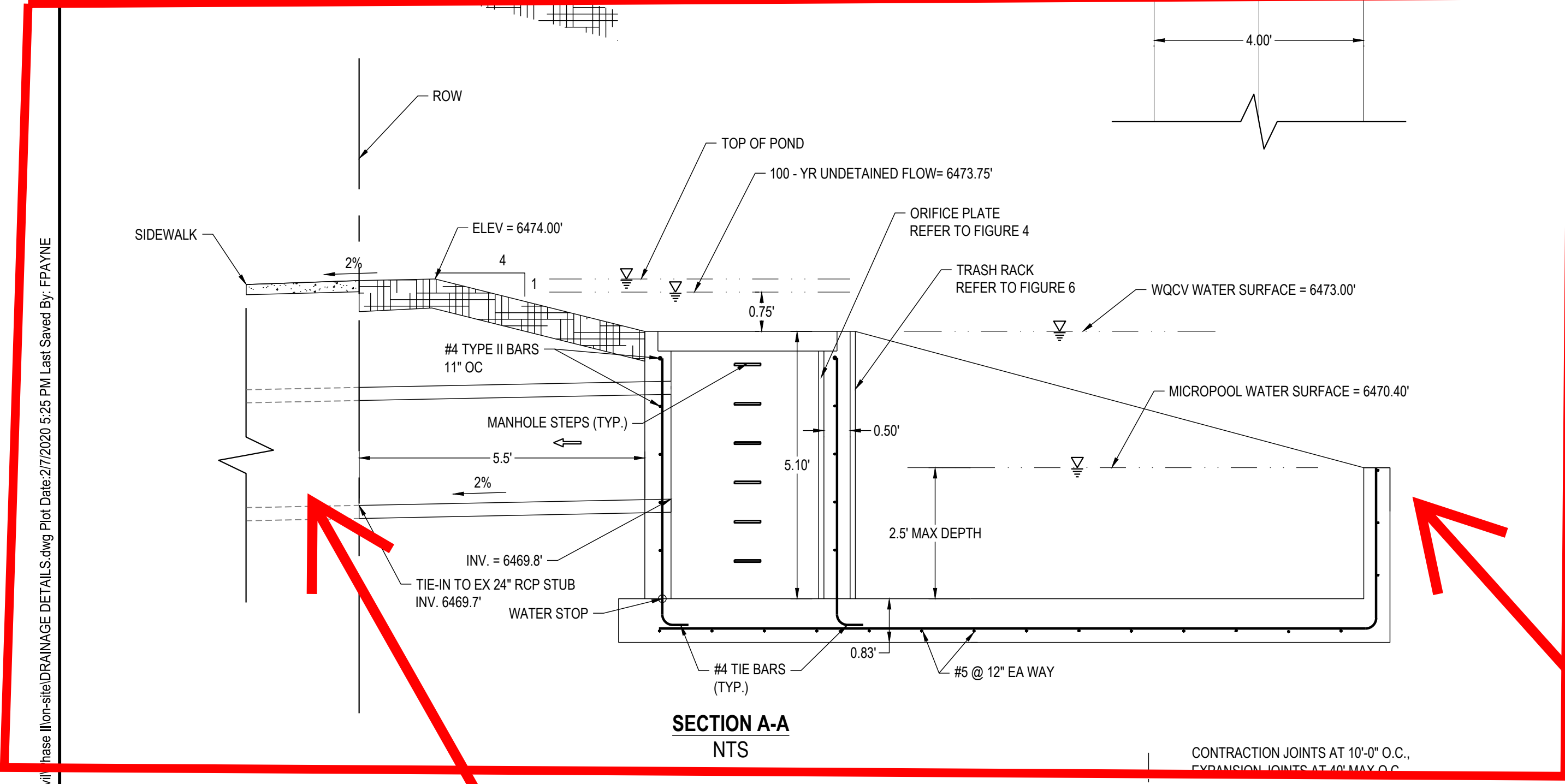
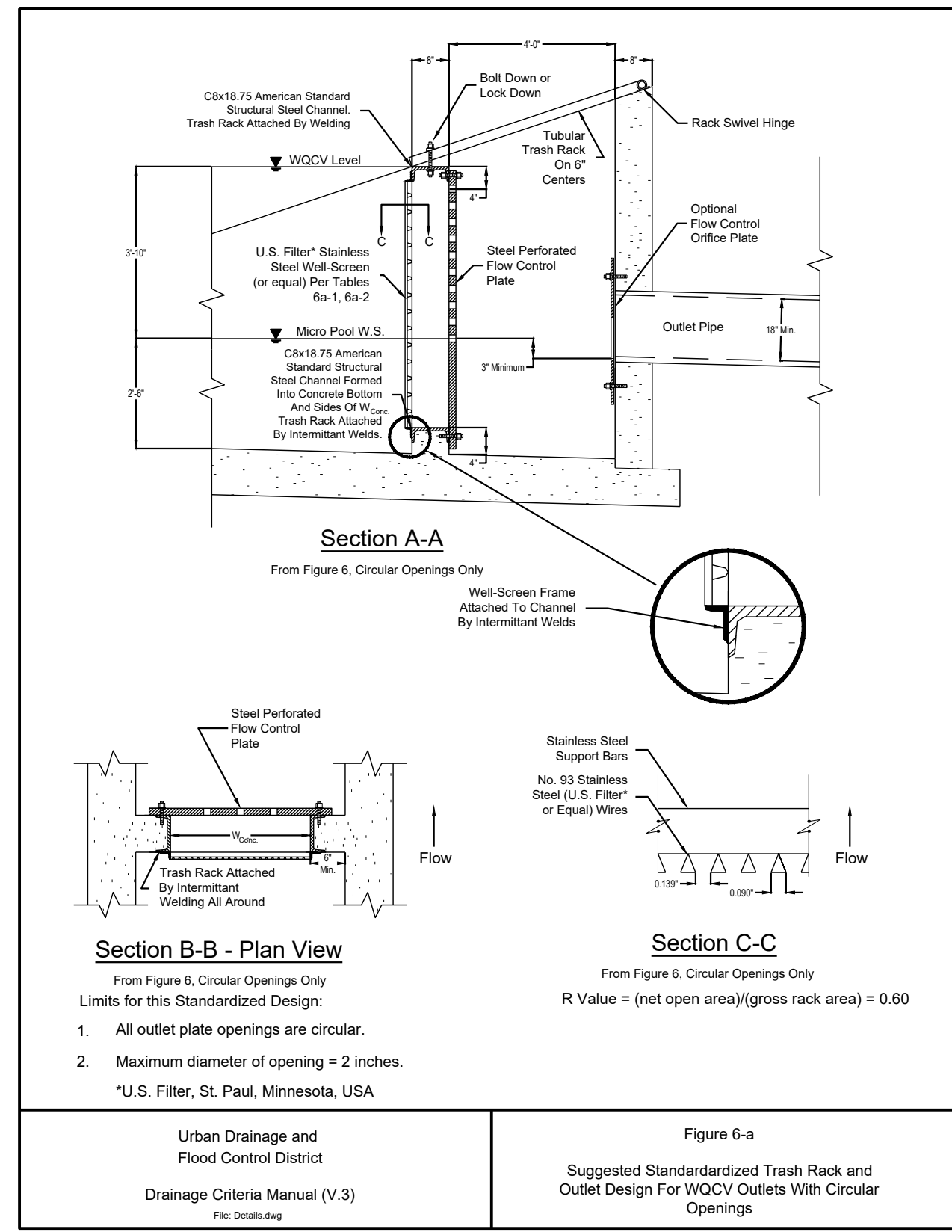
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BAR DESCRIPTION AND LOCATION IN STRUCTURE	CONCRETE STRENGTH psi	BAR SIZE LAP CLASS	#4		#5		#6	
			A	B	A	B	A	B
BAR WITH SPACING > 2" db CLEAR COVER > db OR BEAM & COLUMN BARS WITH SPACING > db CLEAR COVER > DB	4500	TOP	2'-0"	2'-7"	2'-4"	3'-2"	2'-11"	3'-10"
		BOTTOM	1'-6"	2'-0"	1'-11"	2'-8"	2'-3"	2'-11"
OTHER CASES	4500	TOP	2'-11"	3'-10"	3'-8"	4'-0"	4'-5"	4'-9"
		BOTTOM	2'-3"	2'-11"	2'-10"	3'-8"	3'-5"	4'-5"

- NOTES:**
- USE THIS TABLE FOR BAR SPLICES UNLESS SPECIFICALLY DETAILED AND DIMENSIONED ON PLANS.
  - FOR TENSION DEVELOPMENT LENGTHS "Ld", USE CLASS "B" SPLICE LENGTHS.
  - ALL SPLICES SHALL BE CLASS "B" UNLESS NOTED OTHERWISE ON PLANS.
  - TOP BARS ARE HORIZONTAL REINFORCEMENT WITH MORE THAN 12" OF CONCRETE CAST BELOW BAR.
  - BOTTOM BARS ARE ALL VERTICAL BARS, ALL HORIZONTAL WALL REINFORCEMENT, AND HORIZONTAL REINFORCEMENT WITH LESS THAN 12" OF CONCRETE CAST BELOW BAR.
  - COVER DESIGNATES CLEAR CONCRETE COVER FROM SPLICED BAR TO FACE OF MEMBER, SPACING DESIGNATES CLEAR DIMENSION BETWEEN SPLICED BARS.
  - STAGGER CONTINUOUS FOOTING BOTTOM SPLICES AT LEAST 6'-0" FROM SPLICES IN OTHER BOTTOM REINFORCEMENT; STAGGER SPLICES FOR TOP REINFORCEMENT SIMILARLY.



- WQCV Trash Racks:**
- Well-screen trash racks shall be stainless steel and shall be attached by intermittent welds along the edge of the mounting frame.
  - Bar grate trash racks shall be aluminum and shall be bolted using stainless steel hardware.
  - Trash Rack widths are for specified trash rack material. Finer well-screen or mesh size than specified is acceptable, however, trash rack dimensions need to be adjusted for materials having a different open area/gross area ratio (R value)
  - Structural design of trash rack shall be based on full hydrostatic head with zero head downstream of the rack.
- Overflow Trash Racks:**
- All trash racks shall be mounted using stainless steel hardware and provided with hinged and lockable or bolttable access panels.
  - Trash racks shall be stainless steel, aluminum, or steel. Steel trash racks shall be hot dip galvanized and may be hot powder painted after galvanizing.
  - Trash Racks shall be designed such that the diagonal dimension of each opening is smaller than the diameter of the outlet pipe.
  - Structural design of trash rack shall be based on full hydrostatic head with zero head downstream of the rack.

**Existing Storm Sewer and Inlet**

**proposed pond cross section showing full use of available stage - storage**

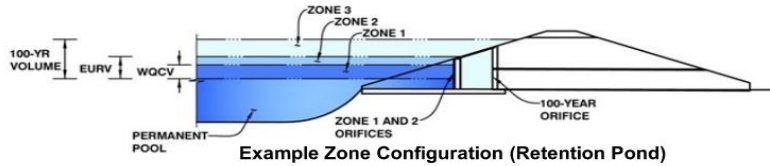


# DETENTION BASIN

MHFD-L

Project: Mountain View Academy

Basin ID: Water Quality Pond



Example Zone Configuration (Retention Pond)

### Watershed Information

Selected BMP Type =	<b>EDB</b>	
Watershed Area =	4.48	acres
Watershed Length =	432	ft
Watershed Length to Centroid =	200	ft
Watershed Slope =	0.015	ft/ft
Watershed Imperviousness =	79.40%	percent
Percentage Hydrologic Soil Group A =	100.0%	percent
Percentage Hydrologic Soil Group B =	0.0%	percent
Percentage Hydrologic Soil Groups C/D =	0.0%	percent
Target WQCV Drain Time =	40.0	hours
Location for 1-hr Rainfall Depths =	User Input	

Note: L / W Ratio < 1  
L / W Ratio = 0.96

Based on basins tributary to the pond. See Drainage Map.

After providing required inputs above including 1-hour rainfall depths, click 'Run CUHP' to generate runoff hydrographs using the embedded Colorado Urban Hydrograph Procedure

Water Quality Capture Volume (WQCV) =	0.121	acre-feet
Excess Urban Runoff Volume (EURV) =	0.467	acre-feet
2-yr Runoff Volume (P1 = 1.19 in.) =	0.211	acre-feet
5-yr Runoff Volume (P1 = 1.5 in.) =	0.403	acre-feet
10-yr Runoff Volume (P1 = 1.75 in.) =	0.477	acre-feet
25-yr Runoff Volume (P1 = 2 in.) =	0.564	acre-feet
50-yr Runoff Volume (P1 = 2.25 in.) =	0.649	acre-feet
100-yr Runoff Volume (P1 = 2.52 in.) =	0.747	acre-feet
500-yr Runoff Volume (P1 = 3.14 in.) =	0.966	acre-feet

### Optional User Overrides

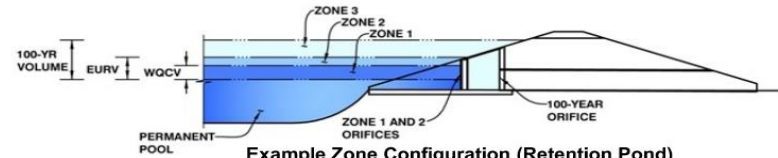
		acre-feet
		acre-feet
	1.19	inches
	1.50	inches
	1.75	inches
	2.00	inches
	2.25	inches
	2.52	inches
		inches

# DETENTION BASIN

MHFD-L

Project: Mountain View Academy

Basin ID: Water Quality Pond



Example Zone Configuration (Retention Pond)

### Watershed Information

Selected BMP Type =	<b>EDB</b>	
Watershed Area =	7.88	acres
Watershed Length =	432	ft
Watershed Length to Centroid =	200	ft
Watershed Slope =	0.015	ft/ft
Watershed Imperviousness =	76.00%	percent
Percentage Hydrologic Soil Group A =	100.0%	percent
Percentage Hydrologic Soil Group B =	0.0%	percent
Percentage Hydrologic Soil Groups C/D =	0.0%	percent
Target WQCV Drain Time =	40.0	hours
Location for 1-hr Rainfall Depths =	User Input	

Note: L / W Ratio < 1  
L / W Ratio = 0.54

Based on full site, compensating over detention. See Drainage Map.

After providing required inputs above including 1-hour rainfall depths, click 'Run CUHP' to generate runoff hydrographs using the embedded Colorado Urban Hydrograph Procedure

Water Quality Capture Volume (WQCV) =	0.213	acre-feet
Excess Urban Runoff Volume (EURV) =	0.821	acre-feet
2-yr Runoff Volume (P1 = 1.19 in.) =		acre-feet
5-yr Runoff Volume (P1 = 1.5 in.) =		acre-feet
10-yr Runoff Volume (P1 = 1.75 in.) =		acre-feet
25-yr Runoff Volume (P1 = 2 in.) =		acre-feet
50-yr Runoff Volume (P1 = 2.25 in.) =		acre-feet
100-yr Runoff Volume (P1 = 2.52 in.) =		acre-feet
500-yr Runoff Volume (P1 = 3.14 in.) =		acre-feet

### Optional User Overrides

		acre-feet
		acre-feet
	1.19	inches
	1.50	inches
	1.75	inches
	2.00	inches
	2.25	inches
	2.52	inches
		inches

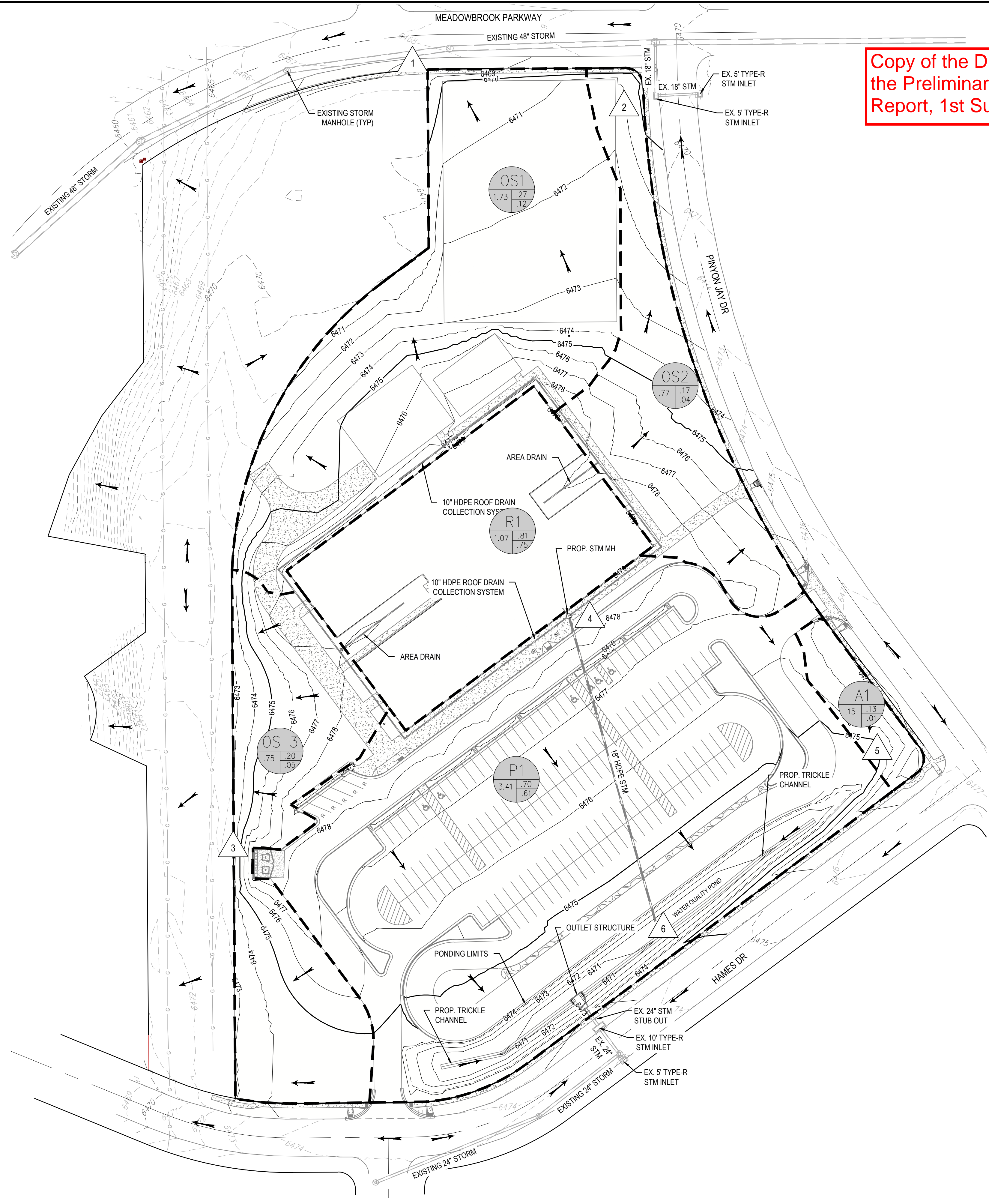


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File Location: O:\DEN\Projects\0398-01 Mountain View Academy\Design\Drainage\Drainage Report\Drainage Map.dwg Plot Date: 2/20/2020 12:33 PM Last Saved By: SZIMMERMANN



Know what's below.  
Call before you dig.



Copy of the Drainage Map from the Preliminary Drainage Report, 1st Submittal

**LEGEND:**

- EXISTING ROAD WAY
- PROPERTY LINE
- 5555 — PROPOSED MAJOR CONTOUR
- 5555 — PROPOSED MINOR CONTOUR
- 5555 — EXISTING MAJOR CONTOUR
- 5555 — EXISTING MINOR CONTOUR
- - - DRAINAGE BASIN BOUNDARY
- FLOW ARROWS
- △ R1 — DESIGN POINT
- A-1 — BASIN IDENTIFICATION
- OS1 — BASIN C5
- OS2 — BASIN C100
- P1 — BASIN AREA (ACRES)

**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.

SCOTT A. ZIMMERMANN, PE # 38571 \_\_\_\_\_ DATE \_\_\_\_\_

**OWNER / DEVELOPER'S STATEMENT:**

I, THE OWNER / DEVELOPER HAVE READ AND WILL COMPLY WITH ALL THE REQUIREMENTS SPECIFIED IN THE DRAINAGE REPORT AND PLAN.

JOE SPRYS \_\_\_\_\_ DATE \_\_\_\_\_  
 CHARTER DEVELOPMENT COMPANY, LLC  
 C/O NATIONAL HERITAGE ACADEMIES  
 3850 BROADMOOR SE, GRAND RAPIDS, MI 49512

**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. \_\_\_\_\_ DATE \_\_\_\_\_  
 COUNTY ENGINEER / ECM ADMINISTRATOR

DEVELOPED RUNOFF SUMMARY TABLE

Basin Name	Dsn Pnt	Area (ac)	Q5 (cfs)	Q100 (cfs)	% Imp
OS-1	1	1.73	0.8	3.3	20.9%
OS-2	2	0.77	0.1	0.8	8.3%
OS-3	3	0.75	0.2	1.3	11.5%
R-1	4	1.07	4.1	7.4	90.0%
A-1	5	0.15	0.0	0.1	2.0%
P-1	6	3.41	10.4	20.2	76.1%
TOTAL	4,5,6	4.63	12.6	24.1	

Engineering / Architecture / Design/Build / Surveying / Planning / Geospatial Solutions  
 3970 GREENWOOD PLAZA ELVD. GREENWOOD VILLAGE, CO. 80111  
 303.515.0144  
 www.merrick.com

MOUNTAIN VIEW ACADEMY DRAINAGE MAP

ISSUED FOR REVIEW

FOR AND ON BEHALF OF MERRICK & COMPANY

JOB NUMBER: 65120399  
 DATE: 02/07/2020  
 SHEET: DRAIN

1 of 1