

**DRAINAGE LETTER
FOR
17224 COPPER VALLEY COURT
EL PASO COUNTY, COLORADO**

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.



John Fornander, P.E. 66415
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.

A handwritten signature in blue ink, appearing to read "Scott Maynes".

Authorized Signature

6-25-2026

Date

Scott Maynes

Printed Name, Title

ALL ABOUT HOME DESIGN

Business Name

13530 Northgate Estates Dr., COS. CO. 80921

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.

Joshua Palmer, P.E.
County Engineer / ECM Administrator

Date

Conditions:

June 25, 2026

RE: 17224 Copper Valley Court
Colorado Springs, CO 80132

To Whom It May Concern:

We have reviewed the previously approved "Final Drainage Report for Grandwood Ranch" prepared by Matrix dated December 2020, relating to 17224 Copper Valley Court (AKA Lot 29 Grandwood Ranch) and have gathered information from aerial views and on site visits. Terra Nova Engineering is of the opinion that stormwater drainage will be in an acceptable condition after the alteration of the existing drainage channel, installation of temporary soil stockpiles, and installation of a residence per the grading and erosion control plan that I have submitted along with this letter. See the attached GEC plan below. The 100-year flow will be maintained inside of the new drainage easement with 1 foot of freeboard as shown by the calculations included in this submittal. As the findings from the swale calculations showed that velocities and slopes were slightly above the maximum values the El Paso County Drainage Criteria Manual allow for grassed swales, check dams have been added to the channel to reduce the numbers to acceptable values. Additionally, the lot will be used to stockpile soil temporarily on the southern portion of the lot. The flow path is to be altered from the existing path in order to make use of the lot for a residence which is also shown on the plans. A revised plat is also included with this submittal. The area of disturbance on this site is over 1 acre. This site is excluded from PCM applicability because it is "land disturbance to undeveloped land where undeveloped land remains undeveloped following the activity." Therefore, no water quality treatment will be required. The changes will not affect the drainage as prescribed in the approved drainage report and will not affect any other neighboring or downstream sites.

In order to comply with the large lot exclusion (El Paso County Engineering Criteria Manual Section I.7.1.B.5), the site must comply with a total imperviousness less than 20% and a total WQCV runoff reduction of 100%. Therefore, runoff reduction calculations were completed to verify adequate routing of impervious area over pervious area and a 100% runoff volume reduction was achieved. As shown in the calculations, the total site imperviousness is 15.8%. Following is a description of area ID's that correlate the runoff reduction calculations to the areas shown on the drainage map.

The disturbed area of 18,444 SF is treated as upper impervious area of Area ID 1. This impervious area mostly sheet flows across a 720' interface of a downstream grass buffer with a slope of approximately 5%. 14,233 SF of this area was treated as the receiving pervious area of Area ID 1. These areas are delineated on the Runoff Reduction map in the appendix. The WQCV contribution of the UIA from the imperviousness of the site is 769 cubic feet. The reduction achieved via sheet flow over the RPA is 769 cubic feet (100%). These water quality calculations are presented and summarized in the appendix.

If you require any additional information, please feel free to contact me directly.

Sincerely,

Terra Nova Engineering, Inc.

John Fornander, P.E.

Project Engineer

Appendix

- Runoff Reductions Calculations
- Runoff Reduction Map
- Grading & Erosion Control Map
- Previous Drainage Map

Total Area of Site (sq ft):	116,741
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Impervious Surface Type	Existing			Proposed (in addition to existing)			Total Site Impervious Area	Total Site Impervious %
	% Impervious	Area (sq ft)	Effective Impervious Area (sq ft)	% Impervious	Area (sq ft)	Effective Impervious Area (sq ft)		
House & Asphalt Driveway (include everything attached to the home like patios, decks, garage, etc)	100%	0	0	100%	18,444	18,444		
Detached Structures (garage, barn, etc)	100%	0	0	100%	0	0		
Dirt Driveway	80%	0	0	80%	0	0		
Note: compacted dirt and gravel are considered 80% impervious			0			18,444	18,444	15.8%

Site Layout

SCM Design, Version 4.02 (June 2025)

Designer: John Fornander

Company: Terra Nova Engineering

Date: June 25, 2026

Project: 17224 Copper Valley Court

Location: 17224 Copper Valley Court

SITE LAYOUT INFO (User Input in Blue Cells)

Water Quality Event (WQE) inches

Outfall ID	1																		
Total Tributary Area (ft ²)	32,677																		
Total Tributary Area (ac)	0.75																		
Imperviousness (%)	15.8%																		
MS4 Design Standard	Runoff																		
SCM Type	RPA																		

Notes:

OUTFALL RESULTS

SCM Worksheet Name	RPA_1																		
Untreated Area (ft ³)	0																		
Default WQCV (ft ³)	264																		
Optional Override WQCV (ft ³)																			
WQCV Reduction (ft ³)	264																		
Remaining WQCV (ft ³)	0																		
WQCV Reduction (%)	100%																		
Design WQCV of SCM (ft ³)	0																		
Pollutant Removal (ft ³)	0																		
Untreated WQCV (ft ³)	0																		

TOTAL SITE RESULTS (Sums results from all Outfalls)

Total Site Area	32,677	ft ²	0.75	acres
Treated Area	32,677	ft ²	0.75	acres
Untreated Area	0	ft ²	0.00	acres
Total Site Imperviousness	15.8%	%		
Default (or Override) WQCV	264	ft ³	0.006	acre-feet
Remaining WQCV	0	ft ³	0.000	acre-feet
WQCV Reduction	100%	%		
Design WQCV	0	ft ³	0.000	acre-feet
Untreated WQCV	0	ft ³	0.000	acre-feet

Confirm with local jurisdiction whether design meets Runoff Reduction Standard

Receiving Pervious Areas (Including Grass Buffers and Grass Swales)

SCM Design, Version 4.02 (June 2025)

Designer: John Fornander
Company: Terra Nova Engineering
Date: June 25, 2026
Project: 17224 Copper Valley Court
Location: 17224 Copper Valley Court
Outfall ID: 1

DESIGN PROCEDURE AND CRITERIA FOR ALL RPAs (User Input in Blue Cells)

1. Apply Four-Cover Land Use Model to Site Layout

Design Point ID	1	P1	P2						
Area Type	RPA	UIA	RPA_Buffer						
Downstream Design Point ID	--	P2	1						
DCIA (ft ²)	--	--	--						
UIA (ft ²)	--	18,444	--						
RPA (ft ²)	--	--	14,233						
SPA (ft ²)	--	--	--						

2. Protect the RPA from Traffic

RPA Protection Type	--	--	None						
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3. Characterize On-site Topsoil and Determine Suitability for the RPA

HSG A (%)	--	--	0.0%						
HSG B (%)	--	--	100.0%						
HSG C/D (%)	--	--	0.0%						

4. Select Appropriate Vegetation

RPA Vegetation Type	--	--	Seed						
Irrigation Type	--	--	None						

Notes:

GRASS BUFFER ADDITIONAL DESIGN PROCEDURE AND CRITERIA (User Input in Blue Cells)

1. Define the UIA:RPA pair, Ratio, and Interface Width

Sheet Flow Inflow Feature	--	--	Curbless						
Is Concrete Edger used?	--	--	NO						
Spacing between slots (ft)	--	--	--						
Slot Opening Length (in)	--	--	--						
Blind Swale Type	--	--	--						
Spreader Energy Dissipation	--	--	--						
Total Area of UIA:RPA (ft ²)	--	--	32,677						
UIA:RPA Ratio	--	--	1.3						
UIA:RPA Interface Width (ft)	--	--	720						
L / W Ratio of UIA:RPA	--	--	0.06						

2. Buffer Length

Average Buffer Length (ft)	--	--	20						
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3. Buffer Slope

Average Buffer Slope (ft/ft)	--	--	0.050						
Effective Distance (ft)	--	--	50						
Number of Level Spreaders	--	--	1						

4. Provide a Vertical Drop

Vertical Drop (in)	--	--	2.00						
Mowing Strip Provided?	--	--	YES						

5. Calculate Runoff for UIA and RPA Pair

Imperviousness (%)	--	--	56.4%						
UIA:RPA Runoff (in)	--	--	0.00						
UIA:RPA Runoff (ft ³)	--	--	0						

6. Compare Runoff from UIA:RPA Pair to Runoff from UIA Only

UIA Runoff (ft ³)	--	--	769						
Runoff Reduction (ft ³)	--	--	769						
Runoff Reduction (%)	--	--	100.0%						

Notes:

GRASS SWALE ADDITIONAL DESIGN PROCEDURE AND CRITERIA (User Input in Blue Cells)

1. Delineate Areas Tributary to Swale

Total Tributary Area (ft ²)	--	--	--							
Imperviousness (%)	--	--	--							

2. Swale Inflows

Concentrated Flow Type	--	--	--							
Blind Swale Type	--	--	--							
Spreader Energy Dissipation	--	--	--							
Vertical Drop (in)	--	--	--							
Gutter Depression (in)	--	--	--							
Curb Opening Length (ft)	--	--	--							
Concrete Sediment Pad	--	--	--							
Min. Forebay Volume (ft ³)	--	--	--							
Design Forebay Volume (ft ³)	--	--	--							
Max. Forebay Depth (in)	--	--	--							
Design Forebay Depth (in)	--	--	--							
Calculated Notch Width (in)	--	--	--							
Design Notch Width (in)	--	--	--							
Drain Time (minutes)	--	--	--							
Energy Dissipation Type	--	--	--							

3. Swale Cross Section

Length of Swale (ft)	--	--	--							
Bottom Width (ft)	--	--	--							
Bottom Area (ft ²)	--	--	--							
Side Slopes (horiz/vert)	--	--	--							

4. Longitudinal Slope

Available Slope (ft/ft)	--	--	--							
Design Slope (ft/ft)	--	--	--							
Total Drop Height (ft)	--	--	--							
Underdrains Provided?	--	--	--							

5. Calculate Runoff from Tributary Area

Tributary Runoff (ft ³)	--	--	--							
Reduced Trib. Runoff (ft ³)	--	--	--							

6. Calculate Runoff Reduction through Swale Bottom

Volume Infiltrated (ft ³)	--	--	--							
Swale Discharge (ft ³)	--	--	--							
Runoff Reduction (%)	--	--	--							

7. Design Discharge

2-year Discharge, Q2 (cfs)	--	--	--							
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8. Design Velocity

Vegetal Retardance Curve	--	--	--							
Velocity, V2 (fps)	--	--	--							

9. Design Flow Depth

Flow Depth, D2 (ft)	--	--	--							
Flow Area, A (ft ²)	--	--	--							
Wetted Perimeter, P (ft)	--	--	--							
Top Width, T (ft)	--	--	--							
Hydraulic Radius, Rh (ft)	--	--	--							
VR Product (ft ² /sec)	--	--	--							
Manning's n value	--	--	--							
Hydraulic Depth, Dh (ft)	--	--	--							
Froude Number	--	--	--							

10. Swale Outflows

Outflows Considered?	--	--	--							
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Notes:

DESIGN POINT RESULT (Sums results for current column and all upstream design point columns.)

Design Point ID	1	P1	P2							
Area Type	RPA	UIA	RPA Buffer							
Total Area (ft ²)	32,677	18,444	32,677							
Imperviousness (%)		100.0%	56.4%							
Tributary Runoff (ft ³)		769	769							
Runoff Reduction (ft ³)	769	0	769							
Runoff Remaining (ft ³)	0	769	0							

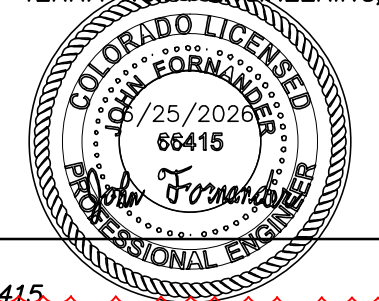
Total Tributary Area entered on Site Layout Worksheet is: 32,677 square feet



- LEGEND**
- EXISTING CONTOUR—MAJOR
 - EXISTING CONTOUR—MINOR
 - EXISTING FLOW DIRECTION
 - EXISTING PROPERTY LINE/ROW
 - - - EXISTING EASEMENT
 - - - LIMITS OF DISTURBANCE/CONSTRUCTION
 - - - PROPOSED EASEMENT
 - PROPOSED CONTOUR—MAJOR
 - PROPOSED CONTOUR—MINOR
 - ▨ PR UNCONNECTED IMPERVIOUS AREA (UIA)
 - ▨ PR RECEIVING PERVIOUS AREA (RPA)

THIS DESIGN WAS PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF TERRA NOVA ENGINEERING, INC.

DESIGNED BY JF
 DRAWN BY JF
 CHECKED BY
 H-SCALE AS SHOWN
 V-SCALE NA
 JOB NO. 2558.00
 DATE ISSUED 6/25/26
 SHEET NO. 1 OF 1

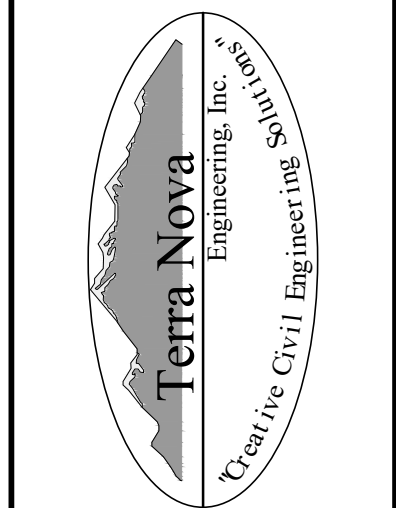


JOHN FORNANDER, P.E.
 COLORADO P.E. NO. 66415

REVISIONS NO.	DESCRIPTION	DATE
1.	RESIDENCE ADDED, GRADING REVISED	6/6/26

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, THIS DRAWING IS NOT TO BE USED FOR ANY PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

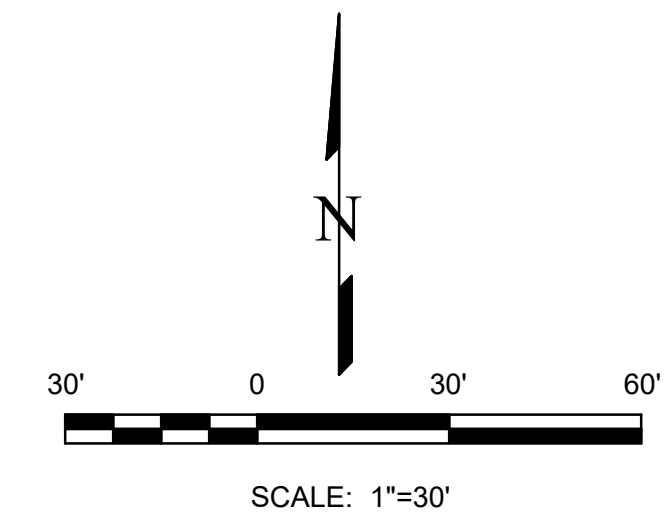
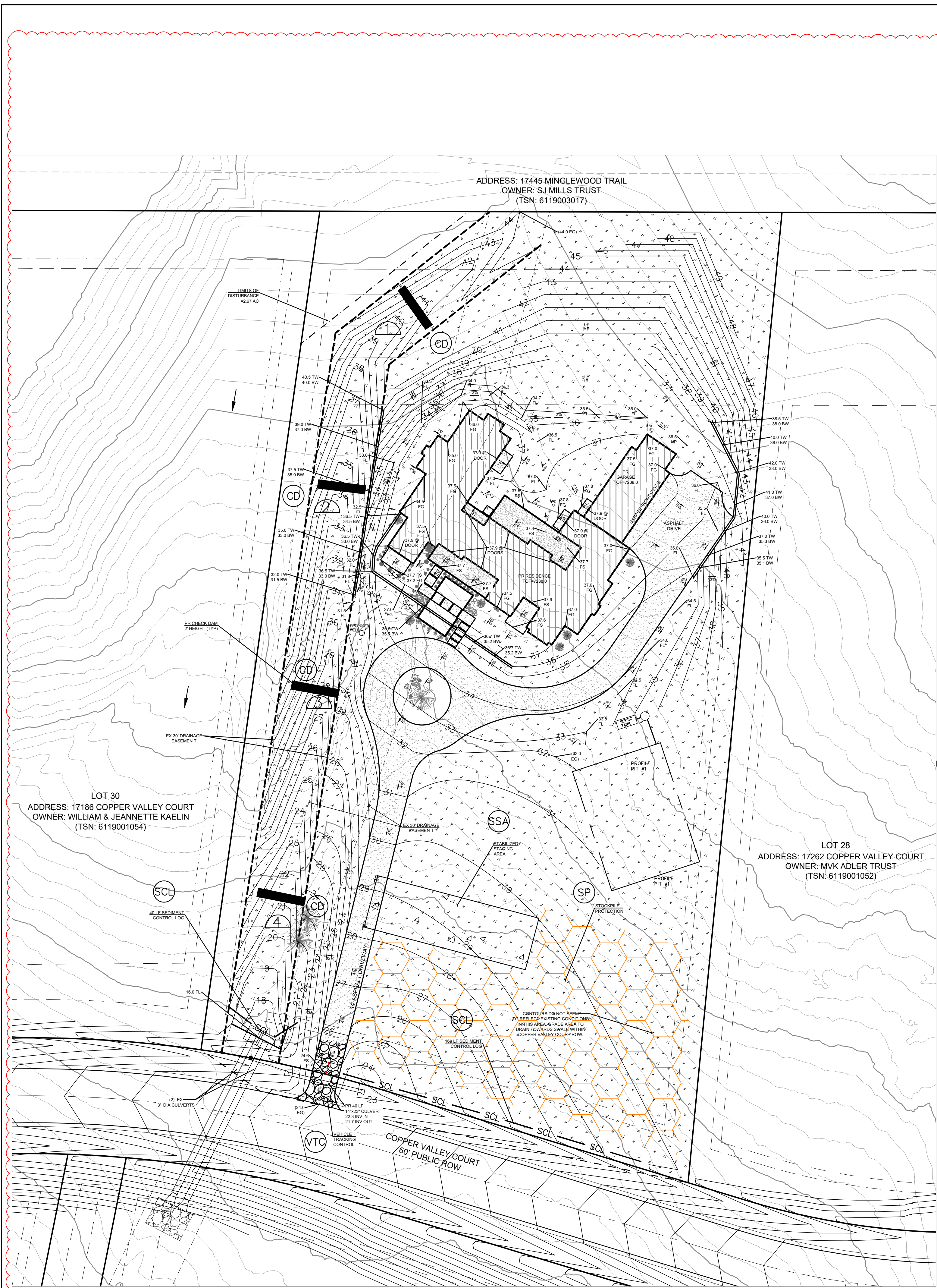
PREPARED FOR:
ALL ABOUT HOME DESIGN, LLC
 ATTN: SCOTT MAYNES
 13530 NORTHGATE ESTATES DR.
 COLORADO SPRINGS, CO 80921
 (719) 559-1220



721 S. 29th STREET
 COLORADO SPRINGS, CO 80904
 OFFICE: 719-635-6422
 FAX: 719-635-6426
 www.tneng.com

17224 COPPER VALLEY COURT
 RUNOFF REDUCTION MAP

DESIGNED BY JF
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 SHEET NO. 1 OF 1



EROSION CONTROL LEGEND

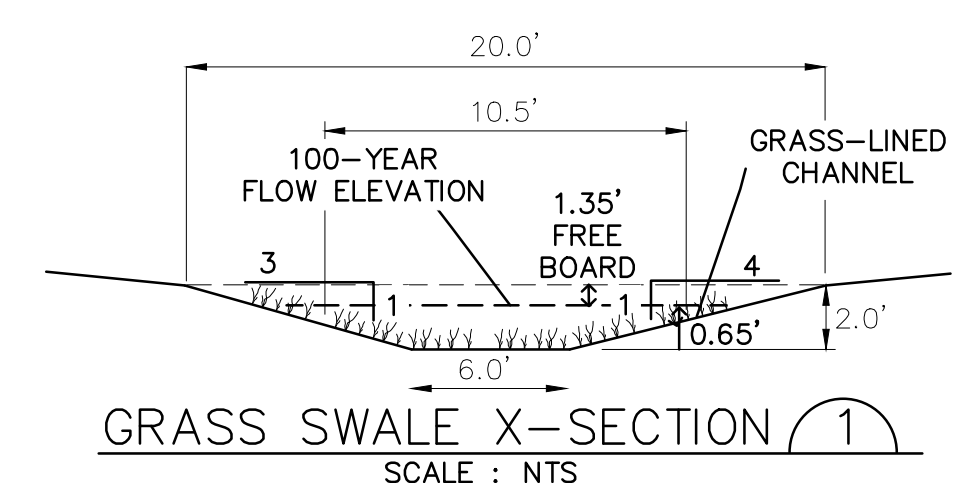
KEY	TITLE	SYMBOL
FINAL	PERMANENT SEEDING AND MULCHING (FINAL)	
INTERIM	STABILIZED STAGING AREA (INTERIM)	
INTERIM	VEHICLE TRACKING CONTROL (INTERIM)	
INTERIM	STOCKPILE PROTECTION (INTERIM)	
INITIAL & INTERIM	SEDIMENT CONTROL LOG (INITIAL & INTERIM)	
FINAL	ROCK CHECK DAM (FINAL)	

LEGEND

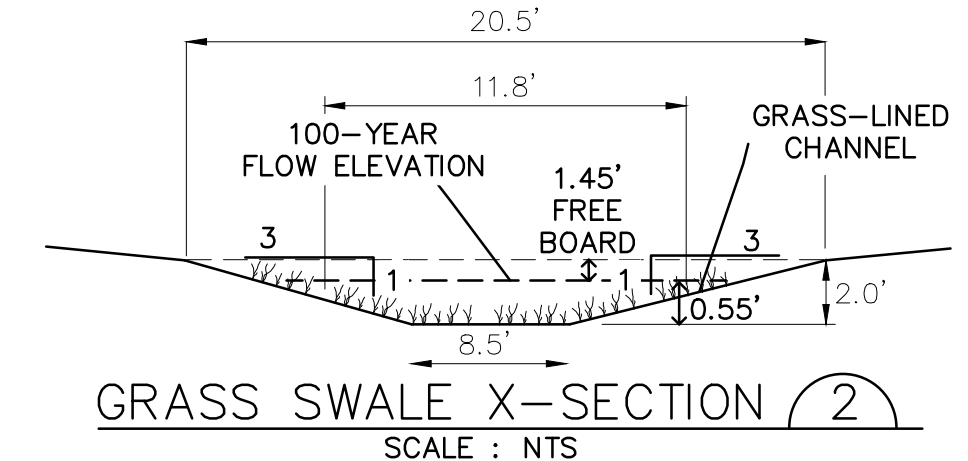
	EXISTING CONTOUR-MAJOR
	EXISTING CONTOUR-MINOR
	EXISTING FLOW DIRECTION
	EXISTING PROPERTY LINE/ROW
	EXISTING EASEMENT
	LIMITS OF DISTURBANCE/CONSTRUCTION
	PROPOSED EASEMENT
	PROPOSED CONTOUR-MAJOR
	PROPOSED CONTOUR-MINOR

GENERAL NOTES

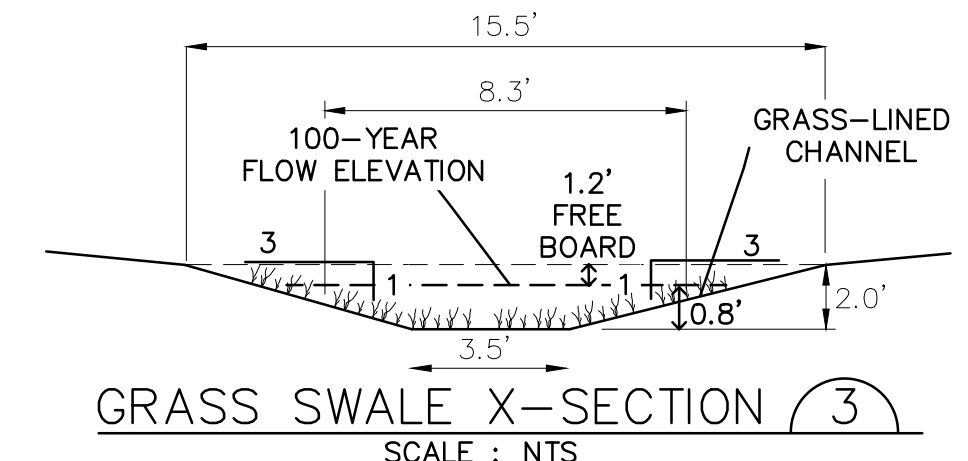
- CONTRACTOR TO MARK UP PLAN SHOWING ACTUAL FIELD INSTALLATION OF EROSION CONTROL BMPs.
- BROADCAST SEEDING SHALL BE PLACED OVER DISTURBED AREAS ONCE THE CONSTRUCTION IS DONE.
- TOTAL LIMITS OF DISTURBANCE ESTIMATED TO BE APPROXIMATELY 0.92 AC.
- WHEN WORK HAS BEEN COMPLETED, CONTRACTOR SHALL RETURN ANY DISTURBED AREAS TO THEIR ORIGINAL GRADES ON AREAS THAT ARE NOT RE-GRADED PER THESE PLANS. USE SURFACE ROUGHENING OR TRACK WHEELING ON SLOPES AND SWALE WITHIN DRAINAGE EASEMENT.
- MAX ALLOWABLE EXCAVATED/STOCKPILED SLOPE IS 2:1.
- VEGETATIVE COVER IS APPROXIMATELY 70% CONSISTING OF NATIVE GRASSES.



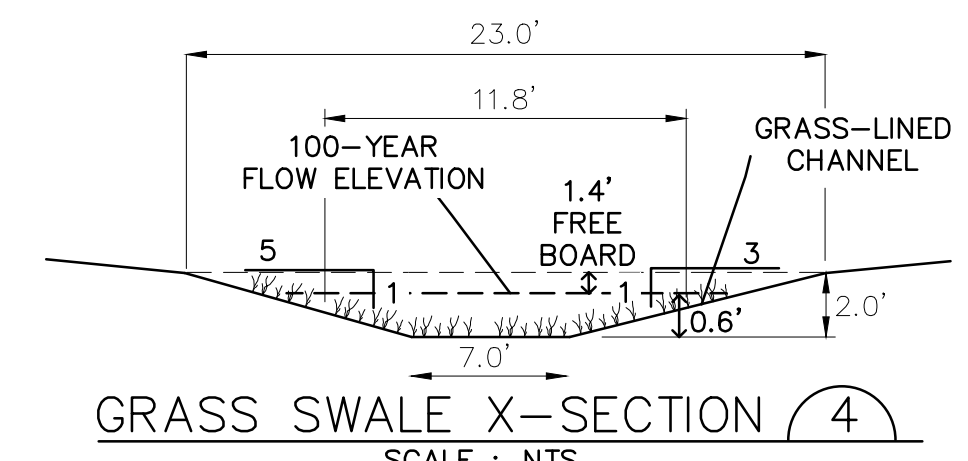
Q (100-YEAR) = 36.0 CFS
 SLOPE = 4.0%
 n VALUE = 0.030
 DEPTH = 0.65'
 VELOCITY = 6.2 FT/S



Q (100-YEAR) = 36.0 CFS
 SLOPE = 4.0%
 n VALUE = 0.030
 DEPTH = 0.55'
 VELOCITY = 6.0 FT/S

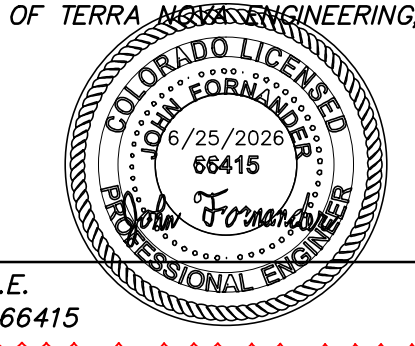


Q (100-YEAR) = 36.0 CFS
 SLOPE = 4.0%
 n VALUE = 0.030
 DEPTH = 0.8'
 VELOCITY = 6.7 FT/S



Q (100-YEAR) = 36.0 CFS
 SLOPE = 4.0%
 n VALUE = 0.030
 DEPTH = 0.6'
 VELOCITY = 6.0 FT/S

THIS DESIGN WAS PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF TERRA NOVA ENGINEERING, INC.



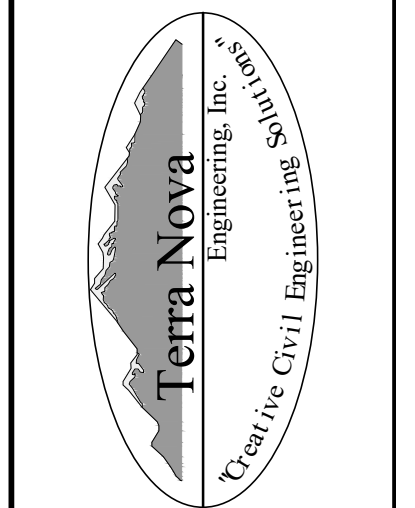
JOHN FORWANDER, P.E.
 COLORADO P.E. NO. 66415

REVISIONS

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 FAX: 719-635-6426
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17224 COPPER VALLEY COURT
 GRADING, EROSION, & SEDIMENT CONTROL PLAN

DESIGNED BY	JF
DRAWN BY	JF
CHECKED BY	
H-SCALE	AS SHOWN
V-SCALE	NA
JOB NO.	2558.00
DATE ISSUED	6/25/26
SHEET NO.	2 OF 4

