PAINT BRUSH HILLS METROPOLITAN DISTRICT
PUMP HOUSE SIX UTILITY BUILDING
SITE DEVELOPMENT PLAN

LOCATED WITHIN THE NORTHEAST QUARTER OF SECTION 26,
TOWNSHIP 12 SOUTH, RANGE 65 WEST OF THE SIXTH PRINCIPAL MERIDIAN,
COUNTY OF EL PASO, STATE OF COLORADO

SEPTEMBER, 2023

CONTACTS

REVIEWING AGENCY

EL PASO COUNTY
DEVELOPMENT SERVICES DEPARTMENT
2880 INTERNATIONAL CIRCLE
COLORADO SPRINGS, CO 80910
(719) 520-6300

OWNER

PAINT BRUSH HILLS METROPOLITAN DISTRICT
9985 TOWNER AVENUE
PEYTON, CO 80831
ROBERT GUEVARA, DISTRICT MANAGER
(719) 495-8188, FAX (719) 495-8008
EMAIL: ROBERT@PBHMD.COM

ENGINEERING

RG AND ASSOCIATES, LLC
4885 WARD ROAD, SUITE 100
WHEAT RIDGE, CO 80033
(303) 293-8107, FAX (303) 293-8106
RICK GONCALVES, P.E.
(303) 468-8484
EMAIL:RICKG@RGENGINEERS.COM

SURVEYING

AZTEC CONSULTANTS, INC.
300 EAST MINERAL AVE. SUITE 1
LITTLETON, CO 80122
(303) 713-1898

EMERGENCY SERVICES

FIRE:
FALCON FIRE PROTECTION DISTRICT
7030 OLD MERIDIAN ROAD
FALCON, CO 80831
TRENT HARWIG, FIRE CHEIF
(719) 495-4050 FAX (719) 495-3112
WWW.FALCONFIREPD.ORG

UTILITIES

ELECTRIC:
MOUNTAIN VIEW ELECTRIC ASSOCIATION, INC.
111140 E. WOODMAN ROAD
FALCON, CO 80831
(719) 495-2283
WWW.MVEA.COOP

WATER & SEWER :
PAINT BRUSH HILLS METROPOLITAN DISTRICT
9830 LIBERTY GROVE AVENUE
FALCON, CO 80831
(719) 495-8188

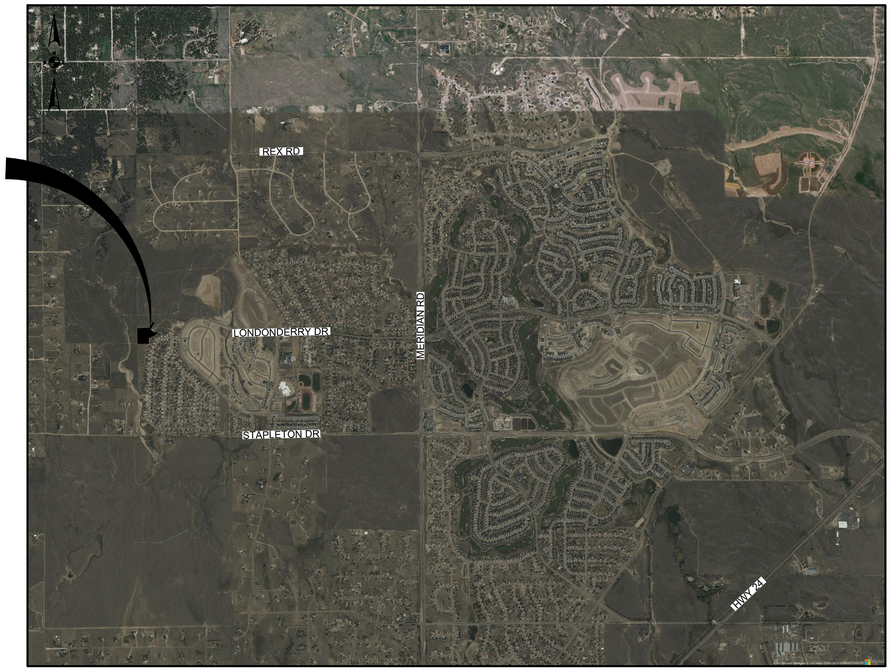
COMMUNICATIONS:
CENTURYLINK
3556 NEW CENTER POINT
COLORADO SPRINGS, CO 80922
(719) 591-0861

COMMUNICATIONS:
FALCON BROADBAND, INC.
555 HATHAWAY DRIVE
COLORADO SPRINGS, CO 80915
(719) 573-5343

GAS:
BLACK HILLS ENERGY
18965 BASE CAMP RD A-7
MONUMENT, CO 80132
(888) 890-5554
WWW.BLACKHILLSENERGY.COM

SHEET INDEX

SHEET NO.	DESCRIPTION
1	COVER SHEET
2	OVERALL TRACT PLAN
3	HORIZONTAL CONTROL PLAN
4	SITE AND UTILITY PLAN
5	ELEVATIONS
6	LANDSCAPE PLAN



VICINITY MAP
1" = 2000 FEET

LEGAL DESCRIPTION:

A PORTION OF:

TRACT A, PAINT BRUSH HILLS FILING NO. 12

A PORTION OF THE EAST HALF OF SECTION 26, IN TOWNSHIP 12 SOUTH, RANGE 65 WEST OF THE SIXTH PRINCIPAL MERIDIAN, EL PASO COUNTY, COLORADO, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

TRACT A AS PLATTED IN PAINT BRUSH HILLS FILING NO. 12 RECORDED UNDER RECEPTION NO. 5226101006. RECORDS OF EL PASO COUNTY, COLORADO.

CONTAINING A CALCULATED AREA OF 153,564 SQUARE FEET OR 3.53 ACRES.

TRACT B, PAINT BRUSH HILLS FILING NO. 14

A REPLAT OF TRACT E, PAINT BRUSH HILLS FILING 13E, BEING A PORTION OF THE NE 1/4 SECTION 26, TOWNSHIP 15 SOUTH, RANGE 65 WEST OF THE SIXTH PRINCIPAL MERIDIAN, EL PASO COUNTY, COLORADO, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

TRACT B AS PLATTED IN PAINT BRUSH HILLS FILING NO. 14 RECORDED UNDER RECEPTION NO. 5226101057. RECORDS OF EL PASO COUNTY, COLORADO.

CONTAINING A CALCULATED AREA OF 10,767 SQUARE FEET OR 0.247 ACRES, MORE OR LESS.

LOTS SUMMARY:

FILING 12, TRACT A:
ADDRESS: ROCKINGHAM DR.
ZONING: RS-20000

FILING 14, TRACT B:
ADDRESS: 10102 KEYNES DR.
ZONING: RS-6000

FUGITIVE DUST DURING CONSTRUCTION

DEVELOPMENTS SHALL COMPLY WITH THE FOLLOWING STANDARDS:
1. CONSTRUCTION ACTIVITY COMPLIANCE ANY PERSON ENGAGED IN GRADING, EXCAVATING, FILLING, OR OTHER CONSTRUCTION ACTIVITY OF GREATER THAN ONE ACRE SHALL BE REQUIRED TO COMPLY WITH THE REQUIREMENTS OF THE AIR QUALITY REGULATIONS, OBTAIN A CONSTRUCTION ACTIVITY PERMIT FROM EL PASO COUNTY PUBLIC HEALTH, AND COMPLY WITH APPLICABLE REQUIREMENTS.

EMISSION CONTROL PLAN REQUIRED:
1. DURATION OF CONSTRUCTION EXCEEDS 6 MONTHS: THE EMISSION CONTROL PLAN SHALL BE APPROVED PRIOR TO SITE GRADING AND A STATE CONSTRUCTION PERMIT SHALL BE OBTAINED PRIOR TO BEGINNING CONSTRUCTION.
2. NUISANCE CONDITIONS: REGARDLESS OF THE SIZE OR DURATION OF DEVELOPMENT, LAND DISTURBANCE SHALL BE CONDUCTED SO NUISANCE CONDITIONS ARE NOT CREATED. IF DUST EMISSIONS DO CREATE A NUISANCE, AN EMISSION CONTROL PLAN IS REQUIRED.
3. EPCPH REVIEW OF EMISSION CONTROL PLANS: THE EPCPH SHALL REVIEW AND APPROVE ALL EMISSION CONTROL PLANS.
4. DUST CONTROL MEASURES: ACCEPTABLE DUST CONTROL MEASURES AND OPERATING PROCEDURES FOR CONSTRUCTION ACTIVITIES MAY INCLUDE, BUT ARE NOT LIMITED TO, PLANTING VEGETATION COVER, PROVIDING SYNTHETIC COVER, WATERING, CHEMICAL STABILIZATION, FURROWS, COMPACTING, MINIMIZING DISTURBED AREA, WIND BREAKS, ON-SITE VEHICLE SPEED CONTROL, AND DELAYED SURFACE OPENING. SOLID WOOD FENCING ALONG ADJACENT DEVELOPED AREAS MAY BE REQUIRED.

HAUL TRUCKS AND HAULAGE EQUIPMENT:
1. DEPOSITION OF DIRT AND MUD ON ROADS: ANY PERSON UNDERTAKING ANY CONSTRUCTION, DEMOLITION, DISMANTLING, OR EARTHMOVING ACTIVITIES SHALL PREVENT THE DEPOSIT OF DIRT, MUD, OR DEBRIS ON PUBLIC ROADS; AND SHOULD DEPOSITION OCCUR, THE DIRT, MUD OR DEBRIS SHALL BE REMOVED AS QUICKLY AS POSSIBLE BY THE PERSON PERFORMING THE ACTIVITIES.
2. PARTICULATES EMISSION IN TRANSIT: PARTICULATES THAT MAY BE EMITTED IN TRANSIT SHALL BE CONTROLLED BY COVERING, WETTING OR OTHERWISE TREATING THE LOAD PRIOR TO TRANSIT.

OPEN BURNING:
1. NO OPEN BURNING WITHOUT PERMIT: NO PERSON SHALL BURN OR ALLOW THE BURNING OF RUBBISH, WASTE PAPER, WOOD, OR OTHER FLAMMABLE MATERIAL ON ANY LOT, TRACT, OR PARCEL, OR ON ANY PUBLIC ROAD, ALLEY, OR OTHER LAND UNLESS AN OPEN BURNING PERMIT IS FIRST OBTAINED FROM THE EPCPH AND IN CONFORMANCE WITH THE AIR QUALITY REGULATIONS.

EROSION AND SEDIMENT CONTROL PLAN

1. PURPOSE: THE PURPOSE OF THE EROSION AND SEDIMENT CONTROL PLAN IS TO CONTROL EROSION DURING CONSTRUCTION IN COMPLIANCE WITH THE REGULATIONS AND EROSION CONTROL STANDARDS OUTLINED IN THE EROSION CONTROL MANUAL.
2. REQUIREMENTS FOR EROSION AND SEDIMENT CONTROL PLAN: DETAILS OF THE PLAN REQUIREMENTS AND STANDARDS ARE CONTAINED IN THE EROSION CONTROL MANUAL.
3. FINANCIAL ASSURANCE REQUIRED: FINANCIAL ASSURANCE FOR ALL TEMPORARY AND PERMANENT MEASURES TO PREVENT AND CONTROL ANTICIPATED EROSION SHALL BE PROVIDED IN CONFORMANCE WITH THE EROSION CONTROL MANUAL.

OPERATIONS AND MAINTENANCE PLAN (STORMWATER QUALITY FACILITY)

1. DURING AND UP TO FINAL STABILIZATION, THE CONTRACTOR SHALL CHECK AND CLEAN OFF DEBRIS AND SEDIMENT AS NEEDED: OUTLET STRUCTURES, PIPES, OUTFALL AND STORMWATER QUALITY AREA FOLLOWING EVERY MEASURABLE STORM EVENT AND EVERY 2 WEEKS (MIN.).
2. UPON FINAL ACCEPTANCE AND THEN AFTER, THE OWNER WILL CHECK AND CLEAN AS NEEDED: OUTLET STRUCTURES, PIPES, OUTFALL AND STORMWATER QUALITY AREA EVERY 3 MONTHS (QUARTERLY).
3. DEBRIS AND SEDIMENT SHALL BE DISPOSED OF IN AN APPROVED OFF SITE FACILITY.

COLORADO REGISTERED 45061 RICARDO J.F. GONCALVES PROFESSIONAL ENGINEER
9/13/23

Approved
By: *Justin Kilgore*
Planning Manager
Date:10/16/2023
El Paso County Planning & Community Development

PCD FILE NO. PPR-2318

PREPARED FOR:
paint brush hills metropolitan district

PREPARED BY:
RG AND ASSOCIATES, LLC
4885 Ward Road, Suite 100 • Wheat Ridge, CO • 80033
303-293-8107 • 303-293-8106 (fax) • www.rgengineers.com

RGA JOB NO. 1070.0026 - PUMP HOUSE SIX UTILITY BUILDING - PAINT BRUSH HILLS METROPOLITAN DISTRICT

48 HOURS BEFORE YOU DIG, CALL UTILITY NOTIFICATION CENTER OF COLORADO (UNCC)

811

GAS, ELECTRIC, TELEPHONE, CATV, AND PANHANDLE EASTERN PIPELINE LOCATIONS

SCALE VERIFICATION

BAR IS ONE INCH ON ORIGINAL DRAWING

IF NOT ONE INCH ON THIS SHEET SCALE ACCORDINGLY

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	EL PASO COUNTY SDP SUBMITTAL	5/03/23	JS/RG
2	EPC SUBMITTAL #2	8/14/23	JS
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.			

RG AND ASSOCIATES, LLC
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Del Norte • Wheat Ridge
303-293-8107 • www.rgengineers.com

PUMP HOUSE SIX UTILITY BUILDING
description

OVERALL TRACT PLAN

prepared for
PAINT BRUSH HILLS METROPOLITAN DISTRICT
9885 TOWNER AVENUE
PEYTON, CO 80831

DRAWN BY:	DESIGNED BY:
JS	JS/RG

JOB NUMBER: 1070.0026

DATE: 9/12/23

SCALE: 1" = 100'

DRAWING DESCRIPTION: TRACT PLAN

SHEET NO: 2 of 6

1

Saved: 8/14/2023 By: JSCHNEIDER Posted: 9/12/2023 11:12 AM

Filename: S:\1070 - PAINT BRUSH HILLS METROPOLITAN DISTRICT\1070.0014 - WELL #12\SITE DEVELOPMENT PLAN\DWG\03 OVERALL TRACT EXHIBIT.DWG

10158 KEYNES DRIVE
PEYTON, CO 80831

RECEPTION NO.
5226101017

10091 KEYNES DRIVE
PEYTON, CO 80831

RECEPTION NO.
5226115022

KEYNES DRIVE
(50' ROW)

S 27°43'50" W
4.34'

△=31°03'58"
R=12.50'
L=6.78'
ChB=S43°15'49"W
ChL=6.69'

△=2°39'53"
R=322.63'
L=15.00'
ChB=N63°33'24"W
ChL=15.00'

S 58°47'48" W
12.45'

△=31°03'58"
R=27.50'
L=14.91'
ChB=S43°15'49"W
ChL=14.73'

N 27°43'31" E
4.67'

△=31°03'58"
R=27.50'
L=14.91'
ChB=N43°15'49"E
ChL=14.73'

N 58°47'48" E
12.45'

△=31°03'58"
R=12.50'
L=6.78'
ChB=N43°15'49"E
ChL=6.69'

10136 KEYNES DRIVE
PEYTON, CO 80831

RECEPTION NO.
5226101016

10114 KEYNES DRIVE
PEYTON, CO 80831

RECEPTION NO.
5226101015

TRACT B

188.69'
S 27°43'50" W

N 27°43'50" E
186.69'

12.47'
15.00'
12.53'

10092 KEYNES DRIVE
PEYTON, CO 80831

RECEPTION NO.
5226101014

10048 KEYNES DR.
PEYTON, CO 80831

RECEPTION NO.
5226101012

△=37°12'05"
R=37.50'
L=24.35'
ChB=S09°07'48"W
ChL=23.92'

△=72°53'12"
R=22.50'
L=28.62'
ChB=N08°42'46"W
ChL=26.73'

△=54°18'53"
R=7.50'
L=7.11'
ChB=S17°41'12"W
ChL=6.85'

23.95'
S 44°50'38" W

9.00'

22.00'

20.25'
N 45°09'22" W

N 44°50'38" E
15.00'

4.00'
20.0'
8.00'
16.16'
3.00'
5.53'
4.00'

N 45°09'22" W
27.00'

25.63'

N 44°50'38" E
17.00'

△=90°00'00"
R=5.00'
L=7.85'
ChB=N89°50'38"E
ChL=7.07'

S 45°09'22" E
7.00'

40.00'

24.00'

717.63'
TO LOT LINE

413.76'
TO LOT LINE

10070 KEYNES DRIVE
PEYTON, CO 80831

RECEPTION NO.
5226101013

9946 ROCKINGHAM DRIVE
PEYTON, CO 80831

RECEPTION NO.
213097174

TRACT A

EXISTING POND C

9932 ROCKINGHAM DRIVE
PEYTON, CO 80831

RECEPTION NO. 218048282

8" 6" 4"

0 20' 40'
SCALE: 1" = 20'

GENERAL NOTES

1. BENCHMARK:
COLORADO SPRINGS UTILITIES MONUMENT F602 BEING A 2-1/2" ALUMINUM ALLOY CAP LOCATED ON THE WEST SIDE OF MERIDIAN ROAD, ABOUT 25 FEET WEST OF THE EDGE OF OIL, AND 122 FEET SOUTH OF THE INTERSECTION OF MERIDIAN ROAD AND TOURMALINE DRIVE.
ELEVATION = 7098.50 (NGVD29)
2. ALL LINEAL UNITS SHOWN ARE U.S. SURVEY FEET.
3. DATE OF SURVEY: THE FIELDWORK FOR THIS SURVEY WAS PERFORMED ON AUGUST 24, AND DECEMBER 12, 2020.
4. THIS SURVEY DOES NOT CERTIFY TO SUBSURFACE FEATURES, IMPROVEMENTS, UTILITIES OR BURIED LINES OF ANY TYPE, LOCATION DEPICTED HEREON ARE DERIVED FROM FIELD SURVEY OF UTILITY FLAGGING / PAINT MARKING, PERFORMED BY AZTEC CONSULTANTS INC. UTILITY LOCATES DEPARTMENT ON AUGUST 17, 2020.
5. THIS TOPOGRAPHY MAP DOES NOT REPRESENT A MONUMENTED LAND SURVEY AND IS ONLY INTENDED TO DEPICT SITE IMPROVEMENTS AND GROUND FEATURES AS THEY EXISTED ON THE DATE SURVEYED.
6. PROJECT COORDINATES ARE MODIFIED COLORADO STATE PLANE CENTRAL ZONE 83(2011) COORDINATES. PROJECT COORDINATES ARE DERIVED FROM STATE PLANE COORDINATES USING THE FOLLOWING FORMULAS:

PROJECT NORTHING = (STATE PLANE NORTHING * 1.000000000) - 1,000,000.00
PROJECT EASTING = (STATE PLANE EASTING * 1.000000000) - 3,000,000.00

48 HOURS BEFORE YOU DIG, CALL UTILITY NOTIFICATION CENTER OF COLORADO (UNCC)
811

GAS, ELECTRIC, TELEPHONE, CATV, AND PANHANDLE EASTERN PIPELINE LOCATIONS

SCALE VERIFICATION
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET
SCALE ACCORDINGLY

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	EL PASO COUNTY SDP SUBMITTAL	5/03/23	JS/RG
2	EPC SUBMITTAL #2	8/14/23	JS
3	EPC SUBMITTAL #3	9/12/23	
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.			

RG AND ASSOCIATES, LLC
4885 Ward Road, Suite 100 • Wheat Ridge, CO 80033
Del Norte • Wheat Ridge
303-293-8107 • www.rgengineers.com

PUMP HOUSE SIX UTILITY BUILDING
description

HORIZONTAL CONTROL PLAN

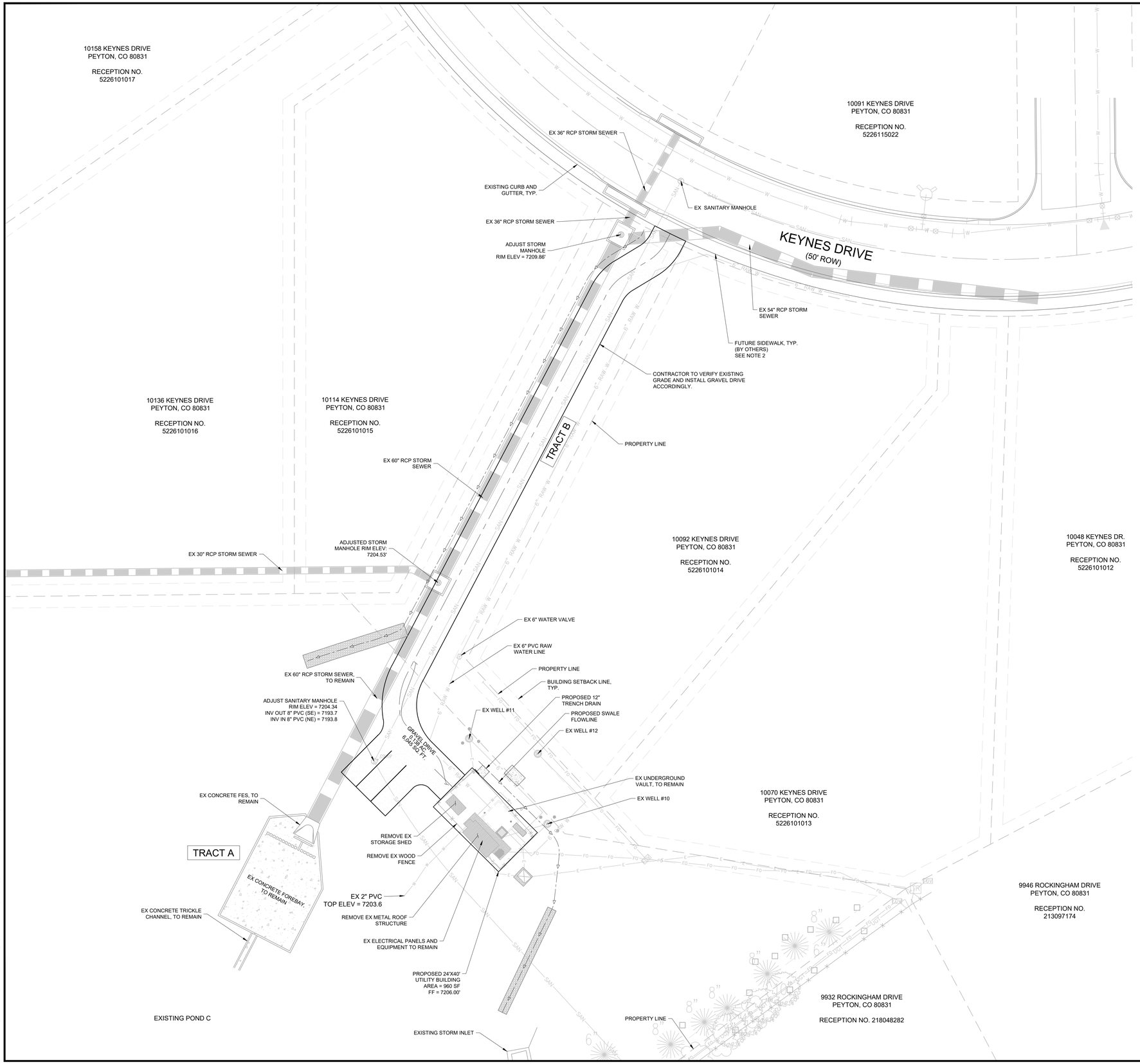
prepared for
PAINT BRUSH HILLS METROPOLITAN DISTRICT
9985 TOWNER AVENUE
PEYTON, CO 80831

COLORADO REGISTERED
JOHN SCHNEIDER
PROFESSIONAL ENGINEER
9/12/23

DRAWN BY:	DESIGNED BY:
JS	JS/RG
JOB NUMBER:	1070.0026
DATE:	9/12/23
SCALE:	1" = 20'
DRAWING DESCRIPTION:	CONTROL PLAN
SHEET NO:	3 of 6

2

Saved: 9/12/2023 By: JSCHNEIDER Plotted: 9/12/2023 11:12 AM
Filename: S:\1070 - PAINT BRUSH HILLS METROPOLITAN DISTRICT\1070.0014 - WELL #12\SITE DEVELOPMENT PLAN\DWG\04-05 PLAN.DWG



LEGEND

- EXISTING PROPERTY LINE
- EXISTING ROAD CENTERLINE
- EXISTING WATER LINE
- EXISTING SANITARY SEWER LINE
- EX 6" RAW WATER LINE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING STORM SEWER MANHOLE
- EXISTING WATER WELL
- EXISTING STORM PIPE
- EXISTING WATER VALVE
- EXISTING ELECTRIC MH
- EXISTING ELECTRIC MKR
- EXISTING ELECTRIC TRANSFORMER
- EXISTING ELECTRIC UNDERGROUND
- EXISTING FIBER OPTIC UNDERGROUND
- EXISTING CABLE TV UNDERGROUND
- EXISTING GAS LINE UNDERGROUND
- PROPOSED PUMP HOUSE FOOTPRINT
- PROPOSED GRAVEL DRIVE
- PROPOSED RIP RAP

NOTES:

1. GRAVEL DRIVE SHALL BE CLASS 6 AGGREGATE BASE COURSE.
2. IF THE SIDEWALK HAS NOT BEEN INSTALLED BEFORE THIS PROJECT STARTS, CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTING THE 5" THICK SIDEWALK, PER EL PASO COUNTY STANDARDS. CONTRACTOR SHALL VERIFY 5" THICK SIDEWALK.

SCALE: 1" = 20'

811 — 48 HOURS BEFORE YOU DIG, CALL UTILITY NOTIFICATION CENTER OF COLORADO (UNCC)

GAS, ELECTRIC, TELEPHONE, CATV, AND PANHANDLE EASTERN PIPELINE LOCATIONS

SCALE VERIFICATION
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET
SCALE ACCORDINGLY

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	EL PASO COUNTY SDP SUBMITTAL	5/03/23	JS/RG
2	EPC SUBMITTAL #2	8/14/23	JS
3	EPC SUBMITTAL #3	9/12/23	

RG AND ASSOCIATES, LLC
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Del Norte • Wheat Ridge
303-293-8107 • www.rgengineers.com

PUMP HOUSE SIX UTILITY BUILDING

SITE AND UTILITY PLAN

prepared for
PAINT BRUSH HILLS METROPOLITAN DISTRICT
9985 TOWNER AVENUE
PEYTON, CO 80831

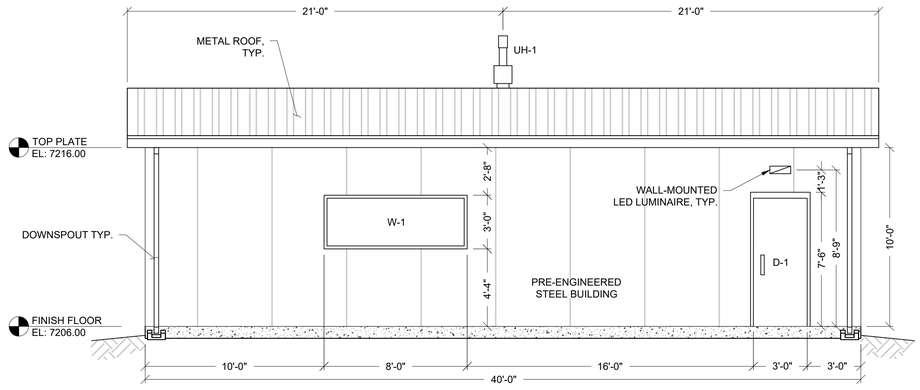
DRAWN BY:	JS
DESIGNED BY:	JS/RG
JOB NUMBER:	1070.0026
DATE:	9/12/23
SCALE:	#########
DRAWING DESCRIPTION:	SITE PLAN
SHEET NO:	4 of 6
	3

Saved: 9/12/2023 By: JSCHNEIDER Plotted: 9/12/2023 11:12 AM
Filename: S:\1070 - PAINT BRUSH HILLS METROPOLITAN DISTRICT\1070.0014 - WELL #12\SITE DEVELOPMENT PLAN\DWG\04-05 PLAN.DWG

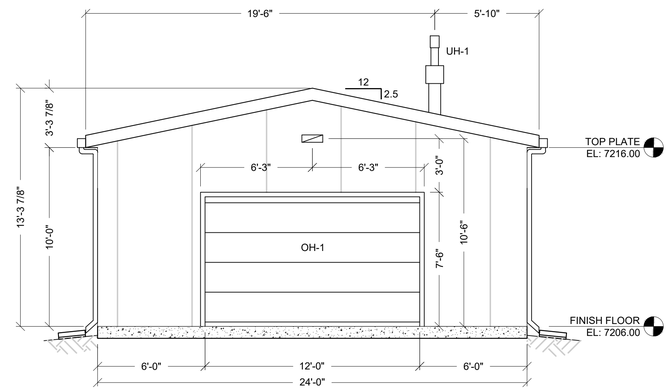
NOTES:

1. ROOF SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
2. PROFESSIONAL ENGINEER'S STAMP APPLIES ONLY TO THIS SHEET AND DOES NOT APPLY TO SUPERSTRUCTURE OR FOUNDATION DRAWINGS.
3. BUILDING MANUFACTURER SHALL PROVIDE ALL SUPPORTS FOR MOUNTING, WALL PENETRATIONS, AND TRIM. MANUFACTURER SHALL ALSO PROVIDE ALL WALL PANELS, FRAMING, SUPPORTS, CONNECTIONS, AND BUILDING-RELATED ITEMS.
4. REFER TO SHEET A2 FOR DOOR AND HARDWARE SCHEDULE.

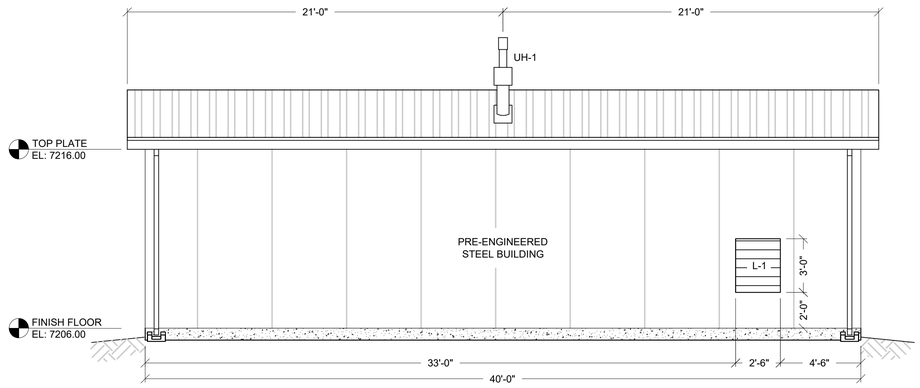
LIGHTING FIXTURE SCHEDULE						
SYMBOL	QTY.	MFR.	CATALOG NUMBER	DESCRIPTION	MTG.	INPUT VA
▭	3	NUVO LIGHTING	65-671	LED WALL-PACK, CUT-OFF TYPE, 120-277VAC, WT: 5 LB. BRONZE, IP 65 RATED, LENSE-IMPACT RESISTANT PC.	WALL 10'-6" AFF	40



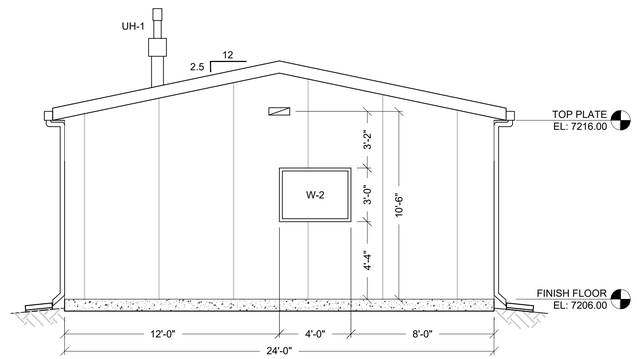
NORTHEAST ELEVATION
1/4" = 1'-0"



NORTHWEST ELEVATION
1/4" = 1'-0"



SOUTHWEST ELEVATION
1/4" = 1'-0"



SOUTHEAST ELEVATION
1/4" = 1'-0"

811 48 HOURS BEFORE YOU DIG, CALL UTILITY NOTIFICATION CENTER OF COLORADO (UNCC)

GAS, ELECTRIC, TELEPHONE, CATV, AND PANHANDLE EASTERN PIPELINE LOCATIONS

SCALE VERIFICATION
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET SCALE ACCORDINGLY

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	EL PASO COUNTY SDP SUBMITTAL	5/8/23	JGS
2	EPC SUBMITTAL #2	8/14/23	JS

RG AND ASSOCIATES, LLC
4885 Ward Road, Suite 100 • Wheat Ridge, CO 80033
Del Norte • Wheat Ridge
303-293-8107 • www.rgengineers.com

PUMP HOUSE SIX UTILITY BUILDING
description

ELEVATIONS

prepared for
PAINT BRUSH HILLS METROPOLITAN DISTRICT
9985 TOWNER AVENUE
PEYTON, CO 80831

DRAWN BY: JS
DESIGNED BY: JS/RG
JOB NUMBER: 1070.0026
DATE: 9/12/23
SCALE: 1/4" = 1'-0"
DRAWING DESCRIPTION: ELEVATIONS
SHEET NO: 5 of 6 — 2

10158 KEYNES DRIVE
PEYTON, CO 80831

RECEPTION NO.
5226101017

10091 KEYNES DRIVE
PEYTON, CO 80831

RECEPTION NO.
5226115022

10114 KEYNES DRIVE
PEYTON, CO 80831

RECEPTION NO.
5226101015

10136 KEYNES DRIVE
PEYTON, CO 80831

RECEPTION NO.
5226101016

KEYNES DRIVE
(50' ROW)

TRACT B
RECEPTION NO.
5226101057

10092 KEYNES DRIVE
PEYTON, CO 80831

RECEPTION NO.
5226101014

10.0' LANDSCAPE BUFFER

803 SF

5 EACH
5 EACH ① ②

TRACT A
RECEPTION NO.
206025897

① 5 EACH
② 5 EACH

1058 SF

20.0' NO BUILD ZONE W/
10' LANDSCAPE BUFFER

10070 KEYNES DRIVE
PEYTON, CO 80831

RECEPTION NO.
5226101013

9932 ROCKINGHAM DRIVE
PEYTON, CO 80831

RECEPTION NO. 218048282

PROPERTY INFORMATION:

TOTAL LOT SIZE: 3.78 ACRES
ZONING: RESIDENTIAL SUBURBAN

LEGEND

①	10 EACH	CURL-LEAF MOUNTAIN MAHOGANY (15' HEIGHT) CERCOCARPUS LEDIFOLIUS
②	10 EACH	FERNBUSH (4' HEIGHT) CHAMAEBATIARIA MILLEFOLIUM
		BARK MULCH

LANDSCAPE SUMMARY:

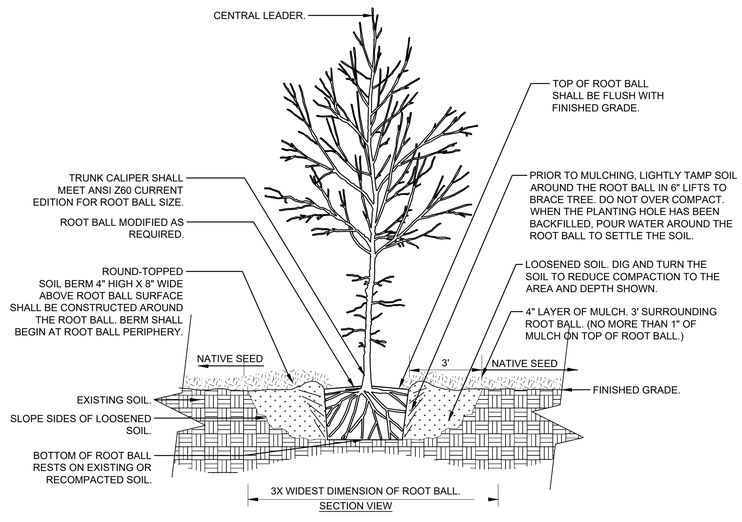
TOTAL SITE AREA = 0.64 ACRES (27,945 SF)

	REQUIRED	PROVIDED
LANDSCAPE (RLA):	5% = 1,375 SF	1,861 SF
	75% LIVE	85% LIVE
INTERIOR LANDSCAPING:		
TREES (1½" CAL.)	1/250 SF = 6 TREES	10 TOTAL
SHRUBS (5 GAL.)	10/TREE (UP TO 50%)	10 TOTAL

IMPROVEMENTS:

TOTAL BUILDING AREA	960 SF (0.022 ACRES)
TOTAL GRAVEL AREA	4,888 SF (0.11 ACRES)
TOTAL PARKING SPACES	3
TOTAL DWELLINGS	0

ZONING: RS-6000 AND RS-20000



TREE w/ BERM (EXISTING SOIL NOT MODIFIED)

NTS

N
W E
S

0 20' 40'

SCALE: 1" = 20'

48 HOURS BEFORE YOU DIG, CALL UTILITY NOTIFICATION CENTER OF COLORADO (UNCC)
811
GAS, ELECTRIC, TELEPHONE, CATV, AND PANHANDLE EASTERN PIPELINE LOCATIONS

SCALE VERIFICATION
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET
SCALE ACCORDINGLY

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	EL PASO COUNTY SDP SUBMITTAL	5/03/23	JS/RG
2	EPC SUBMITTAL #2	8/14/23	JS
.	.	.	.
.	.	.	.

RG AND ASSOCIATES, LLC
4885 Ward Road, Suite 100 • Wheat Ridge, CO 80033
Del Norte • Wheat Ridge
303-293-9107 • www.rgengineers.com

PUMP HOUSE SIX UTILITY BUILDING
description

LANDSCAPE PLAN

prepared for
PAINT BRUSH HILLS METROPOLITAN DISTRICT
9985 TOWNER AVENUE
PEYTON, CO 80831

DRAWN BY: JS
DESIGNED BY: JS/RG
JOB NUMBER: 1070.0026
DATE: 9/12/23
SCALE: 1" = 20'
DRAWING DESCRIPTION: LANDCAPING
SHEET NO: 6 of 6
2

Saved: 8/14/2023 By: JSCHNEIDER Plotted: 9/12/2023 11:13 AM
Filename: S:\1070 - PAINT BRUSH HILLS METROPOLITAN DISTRICT\1070.0014 - WELL #12\SITE DEVELOPMENT PLAN\DWG\07 LANDSCAPE PLAN.DWG

Post Construction Stormwater Management Applicability Evaluation Form

This form is to be used by the Engineer of Record to evaluate applicable construction activities to determine if the activities are eligible for an exclusion to permanent stormwater quality management requirements. Additionally, Part III of the form is used to identify and document which allowable control measure design standard is used for the structure.

Part I. Project Information	
1. Project Name: PBHMD Pump House No. 6	
2. El Paso County Project #: PPR-2318	**3. ESQCP #:**
4. Project Location: Peyton, Colorado	**Project Location in MS4 Permit Area (Y or N):** Y
5. Project Description: Construction of a 40'x22' pump house to enclose existing pump controls, sodium hypochlorite storage and feed, underground vault with associated piping, flow meters, and PRVs for existing wells no. 10, 11, and 12. 0.63 acres of the total 3.78 acres of the two parcels will be disturbed. The remainder will be left as maintained open space.	
If project is located within the El Paso County MS4 Permit Area, please provide copy of this completed form to the Stormwater Quality Coordinator for reporting purposes; and save completed form with project file.	

Part II. Exclusion Evaluation: Determine if Post-Construction Stormwater Management exclusion criteria are met. Note: Questions A thru K directly correlate to the MS4 permit Part I.E.4.a.i (A) thru (K). If Yes, to any of the following questions, then mark Not Applicable in Part III, Question 2.

Questions	Yes	No	Not Applicable	Notes:
A. Is this project a "Pavement Management Site" as defined in Permit Part I E.4.a.i.(A)?		x		This exclusion applies to "roadways" only. Areas used primarily for parking or access to parking are not included.
B. Is the project "Excluded Roadway Development"?				
• Does the site add less than 1 acre of paved area per mile?			x	
• Does the site add 8.25 feet or less of paved width at any location to the existing roadway?			x	
C. Does the project increase the width of the existing roadway by less than 2 times the existing width?			x	For redevelopment of existing roadways, only the area of the existing roadway is excluded from post-construction requirements when the site does not increase the width by two times or more. ***This exclusion only excludes the original roadway area it does NOT apply to entire project.***
D. Is the project considered an aboveground and Underground Utilities activity?		x		Activity can NOT permanently alter the terrain, ground cover or drainage patterns from those present prior to the activity

E. Is the project considered a "Large Lot Single-Family Site"?		x		Must be a single-residential lot or agricultural zoned land, ≥ 2.5 acres per dwelling and total lot impervious area < 10 percent.

Questions (cont'd)	Yes	No	Not Applicable	Notes
F. Do Non-Residential or Non-Commercial Infiltration Conditions exist? Post-development surface conditions do not result in concentrated stormwater flow or surface water discharge during an 80th percentile stormwater runoff event.		x		Exclusion does not apply to residential or commercial sites for buildings. A site-specific study is required and must show: rainfall and soil conditions; allowable slopes; surface conditions; and ratios of imperviousness area to pervious area.
G. Is the project land disturbance to Undeveloped Land where undeveloped land remains undeveloped following the activity?		x		Project must be on land with no human made structures such as buildings or pavement.
H. Is the project a Stream Stabilization Site?		x		Standalone stream stabilization projects are excluded.
I. Is the project a bike or pedestrian trail?		x		Bike lanes for roadways are not included in this exclusion but may qualify if part of larger roadway activity is excluded in A, B or C above.
J. Is the project Oil and Gas Exploration?		x		Activities and facilities associated with oil and gas exploration are excluded.
K. Is the project in a County Growth Area?				Note, El Paso County does not apply this exclusion. All Applicable Construction Activity in El Paso County must comply the Post-Construction Stormwater Management criteria.

Part III. Post Construction (Permanent) Stormwater Control Determination		
Questions	**Yes**	**No**
1. Is project an Applicable Construction Activity?	x	
2. Do any of the Exclusions (A-K in Part II) apply?		x
If the project is an Applicable Construction Activity and no Exclusions apply then Post-Construction (Permanent) Stormwater Management is required. Complete the applicable sections of Part IV below and then coordinate signatures for form and place in project file. If the project is not an Applicable Construction Activity, or Exclusion(s) apply then Post-Construction (Permanent) Stormwater Management is NOT required. Coordinate signatures for form and place in project file.		

Part IV: Onsite PWQ Requirements, Documentation and Considerations	Yes	No
1. Check which Design Standard(s) the project will utilize. Standards align with Control Measure Requirements identified in permit Part I.E.4.a.iv.		
A. Water Quality Capture Volume (WQCV) Standard		x
B. Pollutant Removal/80% Total Suspended Solids Removal (TSS)		x
C. Runoff Reduction Standard		x
D. Applicable Development Site Draining to a Regional WQCV Control Measure	x	
E. Applicable Development Site Draining to a Regional WQCV Facility		x
F. Constrained Redevelopment Sites Standard		x
G. Previous Permit Term Standard		x
2. Will any of the project permanent stormwater control measure(s) be maintained by another MS4? If Yes, you must obtain a structure specific maintenance agreement with the other MS4 prior to advertisement.		x
3. Will any of the project permanent stormwater control measures be maintained by a private entity or quasi-governmental agency (e.g. HOA or Special District, respectively)? If Yes, a Private Detention Basin/Stormwater Quality Best Management Practice Maintenance Agreement and Easement must be recorded with the El Paso County Clerk and Recorder.	x	

Part V Notes (attach an additional sheet if you need more space)
Water Quality will be addressed by existing Pond C.

Project design is complete to include the project design, construction plans, drainage report, specifications, and maintenance and access agreements as required. The engineering, drainage considerations and information used to complete these documents is complete, true, and accurate to the best of my belief and knowledge.

Signature and Stamp of Engineer of Record

9/12/23
Date

Post-Construction Stormwater Management Applicability Form has been reviewed and the project design, construction plans, drainage report, specifications, and maintenance and access agreements as required, have been reviewed for compliance with the Post Construction Stormwater Management process and MS4 Permit requirements.

Engineering Review
09/25/2023 2:52:20 PM
dothartford
EPC Department of Public Works

Signature of El Paso County Project Engineer

Date

3275 Akers Drive
Colorado Springs, CO 80922
Phone 719-520-6460
Fax 719-520-6879
www.elpasoco.com

EPC STORMWATER REVIEW COMMENTS IN ORANGE BOXES WITH BLACK TEXT

Y - Satisfies criteria

N - Needs to be addressed

EL PASO COUNTY
STORMWATER MANAGEMENT PLAN CHECKLIST

Accepted for File
By: Gilbert LaForce, P.E.
Engineering Manager
Date: 09/28/2023 9:15:10 AM
El Paso County Department of Public Works

EPC Project Number: PPR-2318

Revised: October 2021

		Applicant	EPC
1. STORMWATER MANAGEMENT PLAN (in the "Applicant" column specify the page number for each item)			
1	Applicant (owner/designated operator), SWMP Preparer, Qualified Stormwater Manager, and Contractor Information. (On cover/title sheet)	Y	Y
2	Table of Contents	Y	Y
3	Site description and location to include: vicinity map with nearest street/crossroads description	Y	Y
4	Narrative description of construction activities proposed (e.g., may include clearing and grubbing, temporary stabilization, road grading, utility / storm installation, final grading, final stabilization, and removal of temporary control measures)	Y	Y
5	Phasing plan – may require separate drawings indicating initial, interim, and final site phases for larger projects. Provide "living maps" that can be revised in the field as conditions dictate	Y	Y
6	Proposed sequence for major activities: Provide a construction schedule of anticipated starting and completion dates for each stage of land-disturbing activity depicting conservation measures anticipated, including the expected date on which the final stabilization will be completed	Y	Y
7	Estimates of the total site area and area to undergo disturbance; current area of disturbance must be updated on the SWMP as changes occur	Y	Y
8	Soil erosion potential and impacts on discharge that includes a summary of the data used to determine soil erosion potential	Y	Y
9	A description of existing vegetation at the site and percent ground cover and method used to determine ground cover	Y	Y
10	Location and description of all potential pollution sources including but not limited to: disturbed and stored soils; vehicle tracking; management of contaminated soils; loading and unloading operations; outdoor storage of materials; vehicle and equipment maintenance and fueling; significant dust generating process; routine maintenance activities involving fertilizers, pesticides, herbicides, detergents, fuels, solvents, oils, etc.; on-site waste management; concrete truck/equipment washing; dedicated asphalt, concrete batch plants and masonry mixing stations; non-industrial waste such as trash and portable toilets	Y	Y
11	Material handling to include spill prevention and response plan and procedures	Y	Y
12	Spill prevention and pollution controls for dedicated batch plants	Y	Y
13	Other SW pollutant control measures to include waste disposal and off-site soil tracking	Y	Y
14	Location and description of any anticipated allowable non-stormwater discharge (ground water, springs, irrigation, discharge covered by CDPHE Low Risk Guidance, etc.)	Y	Y
15	Name(s) of ultimate receiving waters; size, type and location of stormwater outfall or storm sewer system discharge	Y	Y
16	Description of all stream crossings located within the project area or statement that no streams cross the project area	Y	Y

3275 Akers Drive
Colorado Springs, CO 80922
Phone 719-520-6460
Fax 719-520-6879
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EL PASO COUNTY
STORMWATER MANAGEMENT PLAN CHECKLIST

EPC Project Number: PPR-2318

Revised: October 2021

		Applicant	EPC
17	SWMP Map to include:		
17a	construction site boundaries	Y	Y
17b	flow arrows to depict stormwater flow directions	Y	Y
17c	all areas of disturbance	Y	Y
17d	areas of cut and fill	Y	Y
17e	areas used for storage of building materials, soils (stockpiles) or wastes	Y	Y
17f	location of any dedicated asphalt / concrete batch plants	N	Y
17g	location of all structural control measures	Y	Y
17h	location of all non-structural control measures	Y	Y
17i	springs, streams, wetlands and other surface waters, including areas that require maintenance of pre-existing vegetation within 50 feet of a receiving water	Y	Y
18	Narrative description of all structural control measures to be used. Modifications to EPC standard control measures must meet or exceed County-approved details	Y	Y
19	Description of all non-structural control measures to be used including seeding, mulching, protection of existing vegetation, site watering, sod placement, etc.	Y	Y
20	Technical drawing details for all control measure installation and maintenance; custom or other jurisdiction's details used must meet or exceed EPC standards	Y	Y
21	Procedure describing how the SWMP is to be revised	Y	Y
22	Description of Final Stabilization and Long-term Stormwater Quality (describe nonstructural and structural measures to control SW pollutants after construction operations have been completed, including detention, water quality control measure etc.)	Y	Y
23	Specification that final vegetative cover density is to be 70% of pre-disturbed levels	Y	Y
24	Outline of permit holder inspection procedures to install, maintain, and effectively operate control measures to manage erosion and sediment	Y	Y
25	Record keeping procedures identified to include signature on inspection logs and location of SWMP records on-site	Y	Y
26	If this project relies on control measures owned or operated by another entity, a documented agreement must be included in the SWMP that identifies location, installation and design specifications, and maintenance requirements and responsibility of the control measure(s)	Y	Y
	Please note: all items above must be addressed. If not applicable, explain why, simply identifying "not applicable" will not satisfy CDPHE requirement of explanation.		
2. ADDITIONAL REPORTS/PERMITS/DOCUMENTS			
a	Grading and Erosion Control Plan (signed)	Y	
b	Erosion and Stormwater Quality Control Permit (ESQCP) (signed)	Y	

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EL PASO COUNTY
STORMWATER MANAGEMENT PLAN CHECKLIST

EPC Project Number: PPR-2318

Revised: October 2021

		Applicant	EPC
3. APPLICANT COMMENTS			
a			
b			
c			
4. CHECKLIST REVIEW CERTIFICATIONS			
a	Applicant: The Stormwater Management Plan was prepared under my direction and supervision and is correct to the best of my knowledge and belief. Said Plan has been prepared according to the criteria established by the County and State for Stormwater Management Plans. _____ 9/12/23 Engineer of Record and/or Qualified Stormwater Manager Signature — Date		
b	Review Engineer: The Stormwater Management Plan was reviewed and found to meet the checklist requirements except where otherwise noted or allowed by an approved deviation request. **Engineering Review** *09/25/2023 2:51:40 PM* *dothartford* EPC Department of Public Works _____ _____ Review Engineer — Date		

PUMP HOUSE SIX UTILITY BUILDING

PAINT BRUSH HILLS METROPOLITAN DISTRICT
GRADING AND EROSION CONTROL PLAN

LOCATED WITHIN THE NORTHEAST QUARTER OF SECTION 26,
TOWNSHIP 12 SOUTH, RANGE 65 WEST OF THE SIXTH PRINCIPAL MERIDIAN,
COUNTY OF EL PASO, STATE OF COLORADO

SEPTEMBER, 2023

CONTACTS

REVIEWING AGENCY

EL PASO COUNTY
DEVELOPMENT SERVICES DEPARTMENT
2880 INTERNATIONAL CIRCLE
COLORADO SPRINGS, CO 80910
(719) 520-6300

OWNER

PAINT BRUSH HILLS METROPOLITAN DISTRICT
9985 TOWNER AVENUE
PEYTON, CO 80831
ROBERT GUEVARA, DISTRICT MANAGER
(719) 495-8188, FAX (719) 495-8008
EMAIL: ROBERT@PBHMD.COM

ENGINEERING

RG AND ASSOCIATES, LLC
4885 WARD ROAD, SUITE 100
WHEAT RIDGE, CO 80033
(303) 293-8107, FAX (303) 293-8106
RICK GONCALVES, P.E.
(303) 468-8484
EMAIL:RICKG@RGENGINEERS.COM

SURVEYING

AZTEC CONSULTANTS, INC.
300 EAST MINERAL AVE. SUITE 1
LITTLETON, CO 80122
(303) 713-1898

EMERGENCY SERVICES

FIRE:
FALCON FIRE PROTECTION DISTRICT
7030 OLD MERIDIAN ROAD
FALCON, CO 80831
TRENT HARWIG, FIRE CHEIF
(719) 495-4050 FAX (719) 495-3112
WWW.FALCONFIREPD.ORG

UTILITIES

ELECTRIC:
MOUNTAIN VIEW ELECTRIC ASSOCIATION, INC.
111140 E. WOODMAN ROAD
FALCON, CO 80831
(719) 495-2283
WWW.MVEA.COOP

WATER & SEWER :
PAINT BRUSH HILLS METROPOLITAN DISTRICT
9830 LIBERTY GROVE AVENUE
FALCON, CO 80831
(719) 495-8188

COMMUNICATIONS:
CENTURYLINK
3556 NEW CENTER POINT
COLORADO SPRINGS, CO 80922
(719) 591-0861

COMMUNICATIONS:
FALCON BROADBAND, INC.
555 HATHAWAY DRIVE
COLORADO SPRINGS, CO 80915
(719) 573-5343

GAS:
BLACK HILLS ENERGY
18965 BASE CAMP RD A-7
MONUMENT, CO 80132
(888) 890-5554
WWW.BLACKHILLSENERGY.COM

SHEET INDEX

SHEET NO.	DESCRIPTION
1	COVER SHEET
2	STANDARD NOTES
3	GRADING AND EROSION CONTROL PLAN
4	EROSION CONTROL DETAILS
5	EROSION CONTROL DETAILS

PROJECT LOCATION

VICINITY MAP
1" = 2000 FEET

PUMP HOUSE #6 SDP LEGAL DESCRIPTION:

A PORTION OF:

TRACT A, PAINT BRUSH HILLS FILING NO. 12

A PORTION OF THE EAST HALF OF SECTION 26, IN TOWNSHIP 12 SOUTH, RANGE 65 WEST OF THE SIXTH PRINCIPAL MERIDIAN, EL PASO COUNTY, COLORADO, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

TRACT A AS PLATTED IN PAINT BRUSH HILLS FILING NO. 12 RECORDED UNDER RECEPTION NO. 5226101006. RECORDS OF EL PASO COUNTY, COLORADO.

CONTAINING A CALCULATED AREA OF 153,564 SQUARE FEET OR 3.53 ACRES.

TRACT B, PAINT BRUSH HILLS FILING NO. 14

A REPLAT OF TRACT E, PAINT BRUSH HILLS FILING 13E, BEING A PORTION OF THE NE 1/4 SECTION 26, TOWNSHIP 15 SOUTH, RANGE 65 WEST OF THE SIXTH PRINCIPAL MERIDIAN, EL PASO COUNTY, COLORADO, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

TRACT B AS PLATTED IN PAINT BRUSH HILLS FILING NO. 14 RECORDED UNDER RECEPTION NO. 5226101057. RECORDS OF EL PASO COUNTY, COLORADO.

CONTAINING A CALCULATED AREA OF 10,767 SQUARE FEET OR 0.247 ACRES, MORE OR LESS.

DESIGN ENGINEER'S STATEMENT:

THIS GRADING AND EROSION CONTROL PLAN WAS PREPARED UNDER MY DIRECTION AND SUPERVISION AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. SAID PLAN HAS BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE COUNTY FOR GRADING AND EROSION CONTROL PLANS. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARING THIS PLAN.

RICARDO GONCALVES, PE#14506 — DATE 7/7/23

COLORADO REGISTERED RICARDO LEE GONCALVES 44506 PROFESSIONAL ENGINEER

9/12/23

OWNER/DEVELOPER'S STATEMENT:

I, THE OWNER/DEVELOPER HAVE READ AND WILL COMPLY WITH THE REQUIREMENTS OF THE GRADING AND EROSION CONTROL PLAN.

ROBERT GUEVARA, DISTRICT MANAGER — DATE 7/7/23
PAINT BRUSH HILLS METROPOLITAN DISTRICT
9985 TOWNER AVENUE
PEYTON, CO 80831

EL PASO COUNTY:

COUNTY PLAN REVIEW IS PROVIDED ONLY FOR GENERAL CONFORMANCE WITH COUNTY DESIGN CRITERIA. THE COUNTY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, DIMENSIONS, AND/ OR ELEVATIONS WHICH SHALL BE CONFIRMED AT THE JOB SITE. THE COUNTY THROUGH THE APPROVAL OF THIS DOCUMENT ASSUMES NO RESPONSIBILITY FOR COMPLETENESS AND/ OR ACCURACY OF THIS DOCUMENT.

FILED IN ACCORDANCE WITH THE REQUIREMENTS OF THE EL PASO COUNTY LAND DEVELOPMENT CODE, DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND ENGINEERING CRITERIA MANUAL AS AMENDED.

IN ACCORDANCE WITH ECM SECTION 1.12, THESE CONSTRUCTION DOCUMENTS WILL BE VALID FOR CONSTRUCTION FOR A PERIOD OF 2 YEARS FROM THE DATE SIGNED BY THE EL PASO COUNTY ENGINEER. IF CONSTRUCTION HAS NOT STARTED WITHIN THOSE 2 YEARS, THE PLANS WILL NEED TO BE RESUBMITTED FOR APPROVAL, INCLUDING PAYMENT OF REVIEW FEES AT THE PLANNING AND COMMUNITY DEVELOPMENT DIRECTORS DISCRETION.

Approved
By: Gilbert LaForce, P.E.
Engineering Manager
Date: 09/28/2023 9:19:51 AM
El Paso County Department of Public Works

DATE

FUGITIVE DUST DURING CONSTRUCTION

DEVELOPMENTS SHALL COMPLY WITH THE FOLLOWING STANDARDS:
1. CONSTRUCTION ACTIVITY COMPLIANCE ANY PERSON ENGAGED IN GRADING, EXCAVATING, FILLING, OR OTHER CONSTRUCTION ACTIVITY OF GREATER THAN ONE ACRE SHALL BE REQUIRED TO COMPLY WITH THE REQUIREMENTS OF THE AIR QUALITY REGULATIONS, OBTAIN A CONSTRUCTION ACTIVITY PERMIT FROM EL PASO COUNTY PUBLIC HEALTH, AND COMPLY WITH APPLICABLE REQUIREMENTS.

EMISSION CONTROL PLAN REQUIRED:
1. DURATION OF CONSTRUCTION EXCEEDS 6 MONTHS: THE EMISSION CONTROL PLAN SHALL BE APPROVED PRIOR TO SITE GRADING AND A STATE CONSTRUCTION PERMIT SHALL BE OBTAINED PRIOR TO BEGINNING CONSTRUCTION.
2. NUISANCE CONDITIONS: REGARDLESS OF THE SIZE OR DURATION OF DEVELOPMENT, LAND DISTURBANCE SHALL BE CONDUCTED SO NUISANCE CONDITIONS ARE NOT CREATED. IF DUST EMISSIONS DO CREATE A NUISANCE, AN EMISSION CONTROL PLAN IS REQUIRED.
3. EPCPH REVIEW OF EMISSION CONTROL PLANS: THE EPCPH SHALL REVIEW AND APPROVE ALL EMISSION CONTROL PLANS.
4. DUST CONTROL MEASURES: ACCEPTABLE DUST CONTROL MEASURES AND OPERATING PROCEDURES FOR CONSTRUCTION ACTIVITIES MAY INCLUDE, BUT ARE NOT LIMITED TO, PLANTING VEGETATION COVER, PROVIDING SYNTHETIC COVER, WATERING, CHEMICAL STABILIZATION, FURROWS, COMPACTING, MINIMIZING DISTURBED AREA, WIND BREAKS, ON-SITE VEHICLE SPEED CONTROL, AND DELAYED SURFACE OPENING. SOLID WOOD FENCING ALONG ADJACENT DEVELOPED AREAS MAY BE REQUIRED.

HAUL TRUCKS AND HAULAGE EQUIPMENT:
1. DEPOSITION OF DIRT AND MUD ON ROADS: ANY PERSON UNDERTAKING ANY CONSTRUCTION, DEMOLITION, DISMANTLING, OR EARTHMOVING ACTIVITIES SHALL PREVENT THE DEPOSIT OF DIRT, MUD, OR DEBRIS ON PUBLIC ROADS; AND SHOULD DEPOSITION OCCUR, THE DIRT, MUD OR DEBRIS SHALL BE REMOVED AS QUICKLY AS POSSIBLE BY THE PERSON PERFORMING THE ACTIVITIES.
2. PARTICULATES EMISSION IN TRANSIT: PARTICULATES THAT MAY BE EMITTED IN TRANSIT SHALL BE CONTROLLED BY COVERING, WETTING OR OTHERWISE TREATING THE LOAD PRIOR TO TRANSIT.

OPEN BURNING:
1. NO OPEN BURNING WITHOUT PERMIT: NO PERSON SHALL BURN OR ALLOW THE BURNING OF RUBBISH, WASTE PAPER, WOOD, OR OTHER FLAMMABLE MATERIAL ON ANY LOT, TRACT, OR PARCEL, OR ON ANY PUBLIC ROAD, ALLEY, OR OTHER LAND UNLESS AN OPEN BURNING PERMIT IS FIRST OBTAINED FROM THE EPCPH AND IN CONFORMANCE WITH THE AIR QUALITY REGULATIONS.

EROSION AND SEDIMENT CONTROL PLAN

1. PURPOSE: THE PURPOSE OF THE EROSION AND SEDIMENT CONTROL PLAN IS TO CONTROL EROSION DURING CONSTRUCTION IN COMPLIANCE WITH THE REGULATIONS AND EROSION CONTROL STANDARDS OUTLINED IN THE EROSION CONTROL MANUAL.
2. REQUIREMENTS FOR EROSION AND SEDIMENT CONTROL PLAN: DETAILS OF THE PLAN REQUIREMENTS AND STANDARDS ARE CONTAINED IN THE EROSION CONTROL MANUAL.
3. FINANCIAL ASSURANCE REQUIRED: FINANCIAL ASSURANCE FOR ALL TEMPORARY AND PERMANENT MEASURES TO PREVENT AND CONTROL ANTICIPATED EROSION SHALL BE PROVIDED IN CONFORMANCE WITH THE EROSION CONTROL MANUAL.

OPERATIONS AND MAINTENANCE PLAN (STORMWATER QUALITY FACILITY)

1. DURING AND UP TO FINAL STABILIZATION, THE CONTRACTOR SHALL CHECK AND CLEAN OFF DEBRIS AND SEDIMENT AS NEEDED: OUTLET STRUCTURES, PIPES, OUTFALL AND STORMWATER QUALITY AREA FOLLOWING EVERY MEASURABLE STORM EVENT AND EVERY 2 WEEKS (MIN.).
2. UPON FINAL ACCEPTANCE AND THEN AFTER, THE OWNER WILL CHECK AND CLEAN AS NEEDED: OUTLET STRUCTURES, PIPES, OUTFALL AND STORMWATER QUALITY AREA EVERY 3 MONTHS (QUARTERLY).
3. DEBRIS AND SEDIMENT SHALL BE DISPOSED OF IN AN APPROVED OFF SITE FACILITY.

PREPARED FOR:

paint brush hills metropolitan district

PREPARED BY:

RG AND ASSOCIATES, LLC
4885 Ward Road, Suite 100 • Wheat Ridge, CO • 80033
303-293-8107 • 303-293-8106 (fax) • www.rgengineers.com

PCD FILE NO. PPR-2318

RGA JOB NO. 1070.0026 - PUMP HOUSE SIX UTILITY BUILDING - PAINT BRUSH HILLS METROPOLITAN DISTRICT

STANDARD NOTES FOR EL PASO COUNTY GRADING AND EROSION CONTROL PLANS

1. STORMWATER DISCHARGES FROM CONSTRUCTION SITES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR DEGRADATION OF STATE WATERS. ALL WORK AND EARTH DISTURBANCE SHALL BE DONE IN A MANNER THAT MINIMIZES POLLUTION OF ANY ON-SITE OR OFF-SITE WATERS, INCLUDING WETLANDS.
2. NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.
3. A SEPARATE STORMWATER MANAGEMENT PLAN (SMWP) FOR THIS PROJECT SHALL BE COMPLETED AND AN EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP) ISSUED PRIOR TO COMMENCING CONSTRUCTION. MANAGEMENT OF THE SWMP DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE DESIGNATED QUALIFIED STORMWATER MANAGER OR CERTIFIED EROSION CONTROL INSPECTOR. THE SWMP SHALL BE LOCATED ON-SITE AT ALL TIMES DURING CONSTRUCTION AND SHALL BE KEPT UP TO DATE WITH WORK PROGRESS AND CHANGES IN THE FIELD.
4. ONCE THE ESQCP IS APPROVED AND A "NOTICE TO PROCEED" HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE INITIAL STAGE EROSION AND SEDIMENT CONTROL MEASURES AS INDICATED ON THE APPROVED GEC. A PRECONSTRUCTION MEETING BETWEEN THE CONTRACTOR, ENGINEER, AND EL PASO COUNTY WILL BE HELD PRIOR TO ANY CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE APPLICANT TO COORDINATE THE MEETING TIME AND PLACE WITH COUNTY STAFF.
5. CONTROL MEASURES MUST BE INSTALLED PRIOR TO COMMENCEMENT OF ACTIVITIES THAT COULD CONTRIBUTE POLLUTANTS TO STORMWATER. CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, AND DISTURBED LAND AREAS SHALL BE INSTALLED IMMEDIATELY UPON COMPLETION OF THE DISTURBANCE.
6. ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE MAINTAINED AND REMAIN IN EFFECTIVE OPERATING CONDITION UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND FINAL STABILIZATION IS ESTABLISHED. ALL PERSONS ENGAGED IN LAND DISTURBANCE ACTIVITIES SHALL ASSESS THE ADEQUACY OF CONTROL MEASURES AT THE SITE AND IDENTIFY IF CHANGES TO THOSE CONTROL MEASURES ARE NEEDED TO ENSURE THE CONTINUED EFFECTIVE PERFORMANCE OF THE CONTROL MEASURES. ALL CHANGES TO TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES MUST BE INCORPORATED INTO THE STORMWATER MANAGEMENT PLAN.
7. TEMPORARY STABILIZATION SHALL BE IMPLEMENTED ON DISTURBED AREAS AND STOCKPILES WHERE GROUND DISTURBING CONSTRUCTION ACTIVITY HAS PERMANENTLY CEASED OR TEMPORARILY CEASED FOR LONGER THAN 14 DAYS.
8. FINAL STABILIZATION MUST BE IMPLEMENTED AT ALL APPLICABLE CONSTRUCTION SITES. FINAL STABILIZATION IS ACHIEVED WHEN ALL GROUND DISTURBING ACTIVITIES ARE COMPLETE AND ALL DISTURBED AREAS EITHER HAVE A UNIFORM VEGETATIVE COVER WITH INDIVIDUAL PLANT DENSITY OF 70 PERCENT OF PRE-DISTURBANCE LEVELS ESTABLISHED OR EQUIVALENT PERMANENT ALTERNATIVE STABILIZATION METHOD IS IMPLEMENTED. ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED UPON FINAL STABILIZATION AND BEFORE PERMIT CLOSURE.
9. ALL PERMANENT STORMWATER MANAGEMENT FACILITIES SHALL BE INSTALLED AS DESIGNED IN THE APPROVED PLANS. ANY PROPOSED CHANGES THAT EFFECT THE DESIGN OR FUNCTION OF PERMANENT STORMWATER MANAGEMENT STRUCTURES MUST BE APPROVED BY THE ECM ADMINISTRATOR PRIOR TO IMPLEMENTATION.
10. EARTH DISTURBANCES SHALL BE CONDUCTED IN SUCH A MANNER SO AS TO EFFECTIVELY MINIMIZE ACCELERATED SOIL EROSION AND RESULTING SEDIMENTATION. ALL DISTURBANCES SHALL BE DESIGNED, CONSTRUCTED, AND COMPLETED SO THAT THE EXPOSED AREA OF ANY DISTURBED LAND SHALL BE LIMITED TO THE SHORTEST PRACTICAL PERIOD OF TIME. PRE-EXISTING VEGETATION SHALL BE PROTECTED AND MAINTAINED WITHIN 50 HORIZONTAL FEET OF A WATERS OF THE STATE UNLESS SHOWN TO BE INFEASIBLE AND SPECIFICALLY REQUESTED AND APPROVED.
11. COMPACTION OF SOIL MUST BE PREVENTED IN AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES OR WHERE FINAL STABILIZATION WILL BE ACHIEVED BY VEGETATIVE COVER. AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES SHALL ALSO BE PROTECTED FROM SEDIMENTATION DURING CONSTRUCTION UNTIL FINAL STABILIZATION IS ACHIEVED. IF COMPACTION PREVENTION IS NOT FEASIBLE DUE TO SITE CONSTRAINTS, ALL AREAS DESIGNATED FOR INFILTRATION AND VEGETATION CONTROL MEASURES MUST BE LOOSENED PRIOR TO INSTALLATION OF THE CONTROL MEASURE(S).
12. ANY TEMPORARY OR PERMANENT FACILITY DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF STORMWATER AROUND, THROUGH, OR FROM THE EARTH DISTURBANCE AREA SHALL BE A STABILIZED CONVEYANCE DESIGNED TO MINIMIZE EROSION AND THE DISCHARGE OF SEDIMENT OFF-SITE.
13. CONCRETE WASH WATER SHALL BE CONTAINED AND DISPOSED OF IN ACCORDANCE WITH THE SWMP. NO WASH WATER SHALL BE DISCHARGED TO OR ALLOWED TO ENTER STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES. CONCRETE WASHOUTS SHALL NOT BE LOCATED IN AN AREA WHERE SHALLOW GROUNDWATER MAY BE PRESENT, OR WITHIN 50 FEET OF A SURFACE WATER BODY, CREEK OR STREAM.
14. DURING DEWATERING OPERATIONS, UNCONTAMINATED GROUNDWATER MAY BE DISCHARGED ON-SITE, BUT SHALL NOT LEAVE THE SITE IN THE FORM OF SURFACE RUNOFF UNLESS AN APPROVED STATE DEWATERING PERMIT IS IN PLACE.
15. EROSION CONTROL BLANKETING OR OTHER PROTECTIVE COVERING SHALL BE USED ON SLOPES STEEPER THAN 3:1.
16. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL WASTES FROM THE CONSTRUCTION SITE FOR DISPOSAL IN ACCORDANCE WITH LOCAL AND STATE REGULATORY REQUIREMENTS. NO CONSTRUCTION DEBRIS, TREE SLASH, BUILDING MATERIAL WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, OR DISCHARGED AT THE SITE.
17. WASTE MATERIALS SHALL NOT BE TEMPORARILY PLACED OR STORED IN THE STREET, ALLEY, OR OTHER PUBLIC WAY, UNLESS IN ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN. CONTROL MEASURES MAY BE REQUIRED BY EL PASO COUNTY ENGINEERING IF DEEMED NECESSARY, BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES.
18. TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF-SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFF-SITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY.
19. THE OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION DEBRIS, DIRT, TRASH, ROCK, SEDIMENT, SOIL, AND SAND THAT MAY ACCUMULATE IN ROADS, STORM DRAINS AND OTHER DRAINAGE CONVEYANCE SYSTEMS AND STORMWATER APPURTENANCES AS A RESULT OF SITE DEVELOPMENT.
20. THE QUANTITY OF MATERIALS STORED ON THE PROJECT SITE SHALL BE LIMITED, AS MUCH AS PRACTICAL, TO THAT QUANTITY REQUIRED TO PERFORM THE WORK IN AN ORDERLY SEQUENCE. ALL MATERIALS STORED ON-SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER, IN THEIR ORIGINAL CONTAINERS, WITH ORIGINAL MANUFACTURER'S LABELS.
21. NO CHEMICAL(S) HAVING THE POTENTIAL TO BE RELEASED IN STORMWATER ARE TO BE STORED OR USED ON-SITE UNLESS PERMISSION FOR THE USE OF SUCH CHEMICAL(S) IS GRANTED IN WRITING BY THE ECM ADMINISTRATOR. IN GRANTING APPROVAL FOR THE USE OF SUCH CHEMICAL(S), SPECIAL CONDITIONS AND MONITORING MAY BE REQUIRED.
22. BULK STORAGE OF ALLOWED PETROLEUM PRODUCTS OR OTHER ALLOWED LIQUID CHEMICALS IN EXCESS OF 55 GALLONS SHALL REQUIRE ADEQUATE SECONDARY CONTAINMENT PROTECTION TO CONTAIN ALL SPILLS ON-SITE AND TO PREVENT ANY SPILLED MATERIALS FROM ENTERING STATE WATERS, ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR OTHER FACILITIES.
23. NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE CURB AND GUTTER OR DITCH EXCEPT WITH APPROVED SEDIMENT CONTROL MEASURES.
24. OWNER/DEVELOPER AND THEIR AGENTS SHALL COMPLY WITH THE "COLORADO WATER QUALITY CONTROL ACT" (TITLE 25, ARTICLE 8, CRS), AND THE "CLEAN WATER ACT" (33 USC 1344). IN ADDITION TO THE REQUIREMENTS OF THE LAND DEVELOPMENT CODE, DCM VOLUME II AND THE ECM APPENDIX I. ALL APPROPRIATE PERMITS MUST BE OBTAINED BY THE CONTRACTOR PRIOR TO CONSTRUCTION (1041, NPDES, FLOODPLAIN, 404, FUGITIVE DUST, ETC.). IN THE EVENT OF CONFLICTS BETWEEN THESE REQUIREMENTS AND OTHER LAWS, RULES, OR REGULATIONS OF OTHER FEDERAL, STATE, LOCAL, OR COUNTY AGENCIES, THE MOST RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.
25. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE ONLY AT APPROVED CONSTRUCTION ACCESS POINTS.
26. PRIOR TO CONSTRUCTION THE PERMITTEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.
27. A WATER SOURCE SHALL BE AVAILABLE ON-SITE DURING EARTHWORK OPERATIONS AND SHALL BE UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.
28. THE SOILS REPORT FOR THIS SITE HAS BEEN PREPARED BY KUMAR & ASSOCIATES, INC. ON DECEMBER 14, 2020 AND SHALL BE CONSIDERED A PART OF THESE PLANS.
29. AT LEAST TEN (10) DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB ONE (1) ACRE OR MORE, THE OWNER OR OPERATOR OF CONSTRUCTION ACTIVITY SHALL SUBMIT A PERMIT APPLICATION FOR STORMWATER DISCHARGE TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, WATER QUALITY DIVISION. THE APPLICATION CONTAINS CERTIFICATION OF COMPLETION OF A STORMWATER MANAGEMENT PLAN (SWMP), OF WHICH THIS GRADING AND EROSION CONTROL PLAN MAY BE A PART. FOR INFORMATION OR APPLICATION MATERIALS CONTACT:

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
WATER QUALITY CONTROL DIVISION
WQCD – PERMITS
4300 CHERRY CREEK DRIVE SOUTH
DENVER, CO 80246-1530
ATTN: PERMITS UNIT

811
48 HOURS BEFORE YOU DIG, CALL UTILITY NOTIFICATION CENTER OF COLORADO (UNCC)

GAS, ELECTRIC, TELEPHONE, CATV, AND PANHANDLE EASTERN PIPELINE LOCATIONS

SCALE VERIFICATION
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET SCALE ACCORDINGLY

REVISIONS

NO.	DESCRIPTION	DATE	BY
1.	EL PASO COUNTY SDP SUBMITTAL	5/03/23	JS/RG
2.	EPC SUBMITTAL #2	8/14/23	JS
3.	EPC SUBMITTAL #3	9/12/23	JS
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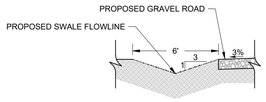
RG AND ASSOCIATES, LLC
4885 Ward Road, Suite 100 • Wheat Ridge, CO 80033
Del Norte • Wheat Ridge
303-293-8107 • www.rgengineers.com

PUMP HOUSE SIX UTILITY BUILDING

STANDARD NOTES

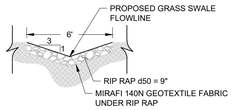
prepared for:
PAINT BRUSH HILLS METROPOLITAN DISTRICT
9985 TOWNER AVENUE
PEYTON, CO 80831

DRAWN BY: JS
DESIGNED BY: JS/RG
JOB NUMBER: 1070.0026
DATE: 9/12/23
SCALE: NONE
DRAWING DESCRIPTION: NOTES
SHEET NO: 2 of 5 (3)



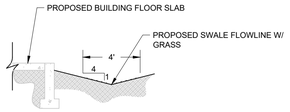
1 SECTION VIEW - GRAVEL DRIVE SWALE

NOT TO SCALE



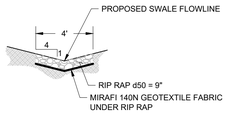
2 SECTION VIEW - SIDE ROAD SWALE

NOT TO SCALE



3 SECTION VIEW - BUILDING SWALE

NOT TO SCALE



4 SECTION VIEW - POND SWALE

NOT TO SCALE

LEGEND

- EXISTING PROPERTY LINE
- EXISTING WATER LINE
- EXISTING SANITARY SEWER LINE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING STORM SEWER MANHOLE
- EXISTING WATER WELL
- EXISTING STORM PIPE
- EXISTING WATER VALVE
- EXISTING ELECTRIC MH
- EXISTING ELECTRIC MKR
- EXISTING ELECTRIC TRANSFORMER
- EXISTING ELECTRIC UNDERGROUND
- EXISTING FIBER OPTIC UNDERGROUND
- EXISTING CABLE TV UNDERGROUND
- EXISTING GAS LINE UNDERGROUND
- EXISTING CONT-MJR
- EXISTING CONT-MNR
- EXISTING SURFACE FLOW DIRECTION ARROW
- PROPOSED SURFACE FLOW DIRECTION ARROW
- PROPOSED SPOT ELEVATION
- PROPOSED CONT-MJR
- PROPOSED CONT-MNR
- PROPOSED PUMP HOUSE FOOTPRINT
- PROPOSED GRAVEL DRIVE
- PROPOSED RIP RAP
- PROPOSED CUT LINE
- PROPOSED FILL LINE
- PROPOSED SILT FENCE
- PROPOSED VEHICLE TRACKING CONTROL
- PROPOSED CONCRETE WASHOUT
- PROPOSED INLET PROTECTION
- PROPOSED SWALE
- PROPOSED EROSION CONTROL BLANKET
- PROPOSED SEEDING AND MULCHING
- PROPOSED STABILIZED STAGING AREA

ABBREVIATIONS

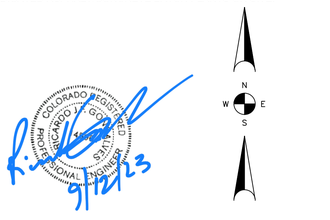
FL	FLOW LINE
FF	FINISHED FLOOR
FG	FINISHED GRADE
HP	HIGH POINT

AREAS OF CUT/FILL

CUT = 371.4 CY
FILL = 31.91 CY
NET = (CUT) 339.5 CY

NOTES:

1. EXISTING SITE HAS NO NOTABLE VEGETATION OTHER THAN FIELD GRASS AND WEEDS. APPROXIMATELY 70% OF THE EXISTING SITE IS COVERED IN GRASSES AND WEEDS.
2. SITE IS NOT LOCATED WITHIN THE FEMA 100-YEAR FLOODPLAIN.
3. CONTRACTOR TO INSTALL EROSION CONTROL BLANKET (ECB) ON SLOPES OF 3:1 OR GREATER.
4. LOCATION OF STABILIZED STAGING AREA (SSA) TO BE DETERMINED AT THE PRE-CONSTRUCTION MEETING.
5. AREAS OUTSIDE OF THE CONSTRUCTION SITE BOUNDARY SHALL BE PROTECTED WITH CONSTRUCTION FENCING OR OTHER METHODS AS APPROPRIATE.
6. THERE ARE NO DEDICATED ASPHALT/CONCRETE BATCH PLANTS ON SITE.



48 HOURS BEFORE YOU DIG, CALL UTILITY NOTIFICATION CENTER OF COLORADO (UNCC)

811

GAS, ELECTRIC, TELEPHONE, CATV, AND PANHANDLE EASTERN PIPELINE LOCATIONS

SCALE VERIFICATION

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REVISIONS

NO.	DESCRIPTION	DATE	BY
1	EL PASO COUNTY SDP SUBMITTAL	5/03/23	JGS
2	EPC SUBMITTAL #2	8/14/23	JS
3	EPC SUBMITTAL #3	9/12/23	JS
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Del Norte • Wheat Ridge
303-293-8107 • www.rgengineers.com

PUMP HOUSE SIX UTILITY BUILDING

GRADING AND EROSION CONTROL PLAN

prepared for
PAINT BRUSH HILLS METROPOLITAN DISTRICT
9985 TOWNER AVENUE
PEYTON, CO 80831

DRAWN BY:	JS
DESIGNED BY:	JS/RG
JOB NUMBER:	1070.0026
DATE:	9/12/23
SCALE:	1" = 20'
DRAWING DESCRIPTION:	GEC PLAN
SHEET NO:	3 of 5

Saved: 9/12/2023 By: JSCHNEIDER Plotted: 9/12/2023 11:54 AM
Filename: S:\1070 - PAINT BRUSH HILLS METROPOLITAN DISTRICT\1070.0014 - WELL #12\SITE DEVELOPMENT PLAN\DWG\05 GRADING AND EROSION CONTROL PLAN.DWG

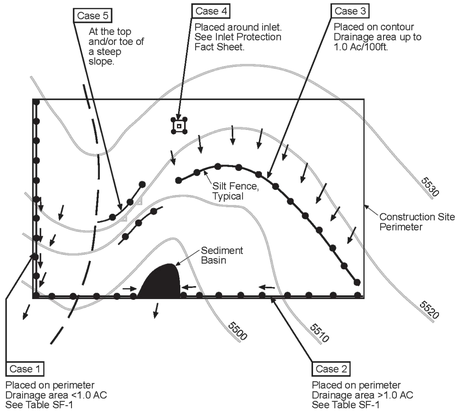

Table SF-1

Silt Fence Used as Perimeter Control	Case 1		Case 2
	DA < 0.25 AC	0.25 < DA < 1 AC	DA > 1.0 AC
Continuous Grade	OK (1)	OK (1)	OK (1)
Area of Concentrated Flow	OK	NO (2)	NO (3)

(1) Temporary Swale or Straw Bale Barrier may be used as alternative to a Silt Fence.
(2) Check Dam may also be used as alternative to Silt Fence at low point.
(3) Sediment Basin is required for concentrated flow from drainage areas > 1.0 AC.

City of Colorado Springs
Storm Water Quality

Figure SF-1
Silt Fence
Application Examples

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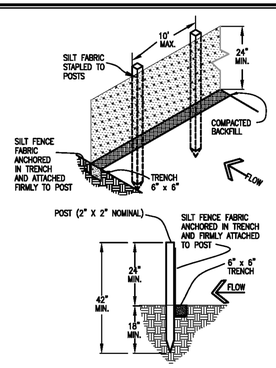


SILT FENCE

SILT FENCE NOTES

INSTALLATION REQUIREMENTS

1. SILT FENCES SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

2. WHEN JOINTS ARE NECESSARY, SILT FENCE GEOTEXTILE SHALL BE SPLICED TOGETHER ONLY AT SUPPORT POST AND SECURELY SEALED.

3. METAL POSTS SHALL BE "STUDDED TEE" OR "U" TYPE WITH MINIMUM WEIGHT OF 1.33 POUNDS PER LINEAR FOOT. WOOD POSTS SHALL HAVE A MINIMUM DIAMETER OR CROSS SECTION DIMENSION OF 2 INCHES.

4. THE FILTER MATERIAL SHALL BE FASTENED SECURELY TO METAL OR WOOD POSTS USING WIRE TIES, OR TO WOOD POSTS WITH 3/4" LONG #9 HEAVY-DUTY STAPLES. THE SILT FENCE GEOTEXTILE SHALL NOT BE STAPLED TO EXISTING TREES.

5. WHILE NOT REQUIRED, WIRE MESH FENCE MAY BE USED TO SUPPORT THE GEOTEXTILE. WIRE FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY-DUTY WIRE STAPLES AT LEAST 3/4" LONG, TIE WIRES OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 8" AND SHALL NOT EXTEND MORE THAN 3' ABOVE THE ORIGINAL GROUND SURFACE.

6. ALONG THE TOE OF FILLS, INSTALL THE SILT FENCE ALONG A LEVEL CONTOUR AND PROVIDE AN AREA BEHIND THE FENCE FOR RUNOFF TO POND AND SEDIMENT TO SETTLE. A MINIMUM DISTANCE OF 5 FEET FROM THE TOE OF THE FILL IS RECOMMENDED.

7. THE HEIGHT OF THE SILT FENCE FROM THE GROUND SURFACE SHALL BE MINIMUM OF 24 INCHES AND SHALL NOT EXCEED 36 INCHES; HIGHER FENCES MAY INPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE.

MAINTENANCE REQUIREMENTS

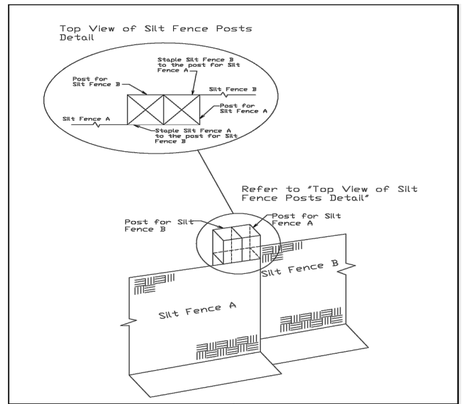
1. CONTRACTOR SHALL INSPECT SILT FENCES IMMEDIATELY AFTER EACH RAINFALL, AT LEAST DAILY DURING PROLONGED RAINFALL, AND WEEKLY DURING PERIODS OF NO RAINFALL. DAMAGED, COLLAPSED, UNENTRENCHED OR INEFFECTIVE SILT FENCES SHALL BE PROMPTLY REPAIRED OR REPLACED.

2. SEDIMENT SHALL BE REMOVED FROM BEHIND SILT FENCE WHEN IT ACCUMULATES TO HALF THE EXPOSED GEOTEXTILE HEIGHT.

3. SILT FENCES SHALL BE REMOVED WHEN ADEQUATE VEGETATIVE COVER IS ATTAINED AS APPROVED BY THE CITY.

City of Colorado Springs
Stormwater Quality

Figure SF-2
Silt Fence
Construction Detail and Maintenance Requirements



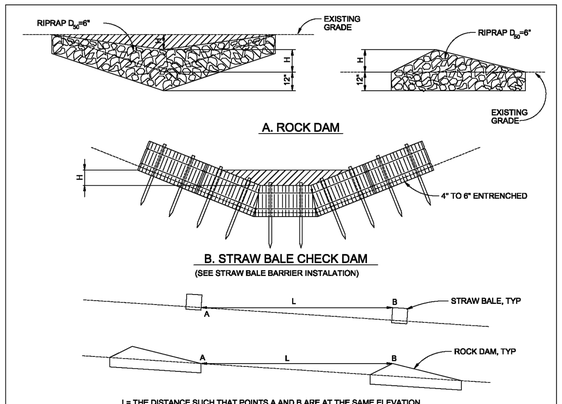
City of Colorado Springs
Stormwater Quality

Figure SF-3
Silt Fence Joint Tying
Construction Detail and Maintenance Requirements

Table 703-2
CLASSIFICATION FOR AGGREGATEBASE COURSE

Sieve Size	Mass Percent Passing Square Mesh Sieves						
	LL not greater than 35			LL not greater than 30			
	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7
150 mm (6")			100				
100 mm (4")		100					
75 mm (3")		95-100					
60 mm (2 ½")	100						
50 mm (2")	95-100			100			
37.5 mm (1 ½")				90-100	100		
25 mm (1")					95-100	100	100
19 mm (3/4")				50-90		95-100	
4.75 mm (#4)	30-65			30-50	30-70	30-65	
2.36 mm (#8)						25-55	20-85
75 µm (#200)	3-15	3-15	20 max	3-12	3-15	3-12	5-15

NOTE: Class 3 material shall consist of bank or pit run material.



L= THE DISTANCE SUCH THAT POINTS A AND B ARE AT THE SAME ELEVATION.

C. SPACING CHECK DAMS

CHECK DAM
NTS

CHECK DAM NOTES

INSTALLATION REQUIREMENTS

1. STRAW BALES USED AS CHECK DAMS ARE TO MEET THE REQUIREMENTS STATED IN FIGURE SB9-2.

2. THE "H" DIMENSION SHALL BE SELECTED TO PROVIDE WEIR FLOW CONVEYANCE FOR 2-YEAR FLOW OR GREATER.

MAINTENANCE REQUIREMENTS

1. REGULAR INSPECTIONS ARE TO BE MADE OF ALL CHECK DAMS, ESPECIALLY AFTER STORM EVENTS.

2. REPLACE STONE AS NECESSARY TO MAINTAIN THE CORRECT HEIGHT OF THE DAM.

3. ACCUMULATED SEDIMENT AND DEBRIS IS TO BE REMOVED FROM BEHIND THE DAMS AFTER EACH STORM OR WHEN 1/2 OF THE ORIGINAL HEIGHT OF THE DAM IS REACHED.

3. CHECK DAMS ARE TO REMAIN IN PLACE AND OPERATIONAL UNTIL THE DRAINAGE AREA AND CHANNEL ARE PERMANENTLY STABILIZED.

4. WHEN CHECK DAMS ARE REMOVED THE CHANNEL LINING OR VEGETATION IS TO BE RESTORED.

City of Colorado Springs
Stormwater Quality

Figure CD-1
Check Dam
Construction Detail and Maintenance Requirements

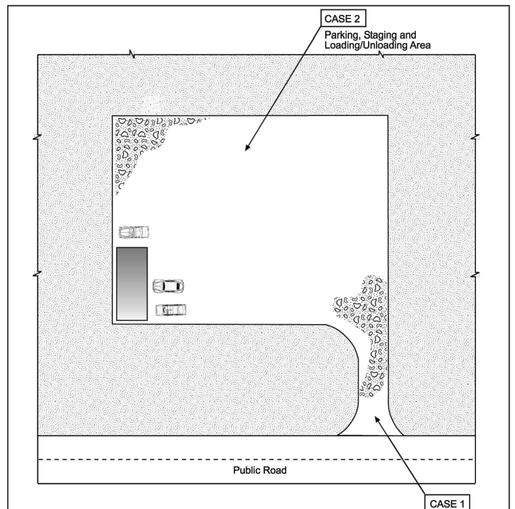


Table VT-1

	Case 1	Case 2
Gravel Thickness	9"	3"
Filter Fabric	YES	NO

City of Colorado Springs
Storm Water Quality

Figure VT-1
Vehicle Tracking
Application Examples

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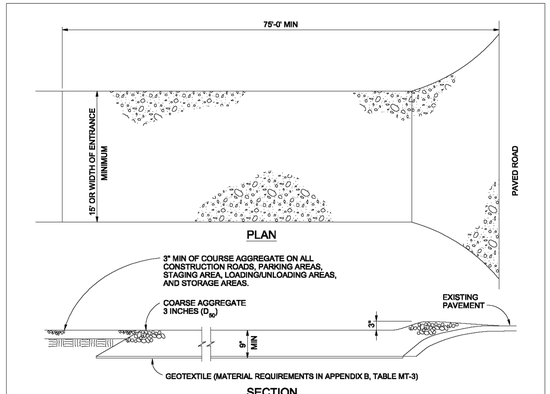


SECTION

VEHICLE TRACKING
NTS

VEHICLE TRACKING NOTES

INSTALLATION REQUIREMENTS

1. ALL ENTRANCES TO THE CONSTRUCTION SITE ARE TO BE STABILIZED PRIOR TO CONSTRUCTION BEGINNING.

2. CONSTRUCTION ENTRANCES ARE TO BE BUILT WITH AN APRON TO ALLOW FOR TURNING TRAFFIC, BUT SHOULD NOT BE BUILT OVER EXISTING PAVEMENT EXCEPT FOR A SLIGHT OVERLAP.

3. AREAS TO BE STABILIZED ARE TO BE PROPERLY GRADED AND COMPACTED PRIOR TO LAYING DOWN GEOTEXTILE AND STONE.

4. CONSTRUCTION ROADS, PARKING AREAS, LOADING/UNLOADING ZONES, STORAGE AREAS, AND STAGING AREAS ARE TO BE STABILIZED.

5. CONSTRUCTION ROADS ARE TO BE BUILT TO CONFORM TO SITE GRADES, BUT SHOULD NOT HAVE SIDE SLOPES OR ROAD GRADES THAT ARE EXCESSIVELY STEEP.

MAINTENANCE REQUIREMENTS

1. REGULAR INSPECTIONS ARE TO BE MADE OF ALL STABILIZED AREAS, ESPECIALLY AFTER STORM EVENTS.

2. STONES ARE TO BE REAPPLIED PERIODICALLY AND WHEN REPAIR IS NECESSARY.

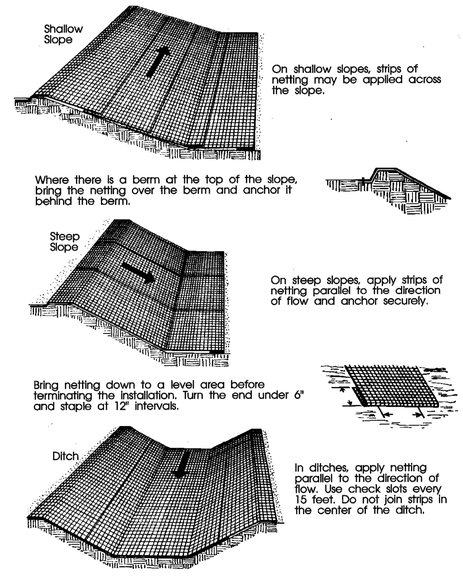
3. SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED DAILY BY SHOVELING OR SWEEPING. SEDIMENT IS NOT TO BE WASHED DOWN STORM SEWER DRAINS.

4. STORM SEWER INLET PROTECTION IS TO BE IN PLACE, INSPECTED, AND CLEANED IF NECESSARY.

5. OTHER ASSOCIATED SEDIMENT CONTROL MEASURES ARE TO BE INSPECTED TO ENSURE GOOD WORKING CONDITION.

City of Colorado Springs
Stormwater Quality

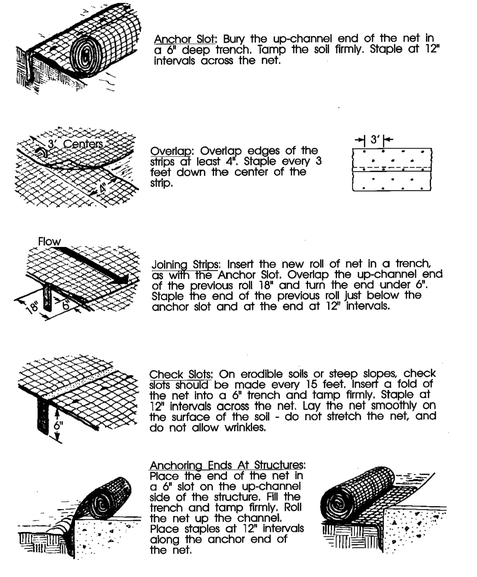
Figure VT-2
Vehicle Tracking
Application Examples



City of Colorado Springs
Storm Water Quality

Figure ECB-1
Erosion Control Blanket
Application Examples

DEN\M\153722.CS.CBiFigECB-1/9-99



City of Colorado Springs
Storm Water Quality

Figure ECB-2
Erosion Control Blanket
Installation Requirements

DEN\M\153722.CS.CBiFigECB-2/9-99

48 HOURS BEFORE YOU DIG, CALL UTILITY NOTIFICATION CENTER OF COLORADO (UNCO)
811

GAS, ELECTRIC, TELEPHONE, CATV, AND PANHANDLE EASTERN PIPELINE LOCATIONS

SCALE VERIFICATION
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET
SCALE ACCORDINGLY

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	EL PASO COUNTY SDP SUBMITTAL	5/03/23	JS/RG
2	EPC SUBMITTAL #2	8/14/23	JS
3	EPC SUBMITTAL #3	9/12/23	JS
.	.	.	.
.	.	.	.

RG AND ASSOCIATES, LLC
4885 Ward Road, Suite 100 • Wheat Ridge, CO 80033
Del Norte • Wheat Ridge
303-293-8107 • www.rgengineers.com

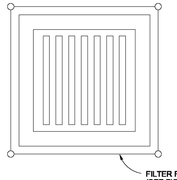
PUMP HOUSE SIX UTILITY BUILDING
description

EROSION CONTROL DETAILS

prepared for:
PAINT BRUSH HILLS METROPOLITAN DISTRICT
9985 TOWNER AVENUE
PEYTON, CO 80831

DRAWN BY: JS
DESIGNED BY: JS/RG
JOB NUMBER: 1070.0026
DATE: 9/12/23
SCALE: NONE
DRAWING DESCRIPTION: EC DETAILS
SHEET NO: 4 of 5
3

Saved: 9/12/2023 By: JSCHNEIDER Plotted: 9/12/2023 10:28 AM
Filename: S:\1070 - PAINT BRUSH HILLS METROPOLITAN DISTRICT\1070.0014 - WELL #12\SITE DEVELOPMENT PLAN\DWG\08-09 EC DETAILS.DWG



FILTER FABRIC INLET PROTECTION
NTS

FILTER FABRIC INLET PROTECTION NOTES

INSTALLATION REQUIREMENTS

1. INLET PROTECTION SHALL BE INSTALLED IMMEDIATELY AFTER CONSTRUCTION OF INLET.

2. SEE SILT FENCE FIGURE SF-2 FOR INSTALLATION REQUIREMENTS.

3. POSTS ARE TO BE PLACED AT EACH CORNER OF THE INLET AND AROUND THE EDGES AT A MAXIMUM SPACING OF 3 FEET.

MAINTENANCE REQUIREMENTS

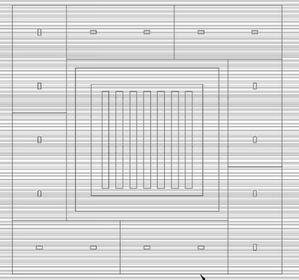
1. CONTRACTOR SHALL INSPECT INLET PROTECTION IMMEDIATELY AFTER EACH RAINFALL, AT LEAST DAILY DURING PROLONGED RAINFALL, AND WEEKLY DURING PERIODS NO RAINFALL.

2. DAMAGED, COLLAPSED, UNENTRENCHED OR INEFFECTIVE INLET PROTECTION SHALL BE PROMPTLY REPAIRED OR REPLACED.

3. SEDIMENT SHALL BE REMOVED FROM BEHIND FILTER FABRIC WHEN IT ACCUMULATES TO HALF THE EXPOSED GEOTEXTILE HEIGHT.

4. FILTER FABRIC PROTECTION SHALL BE REMOVED WHEN ADEQUATE VEGETATIVE COVER IS ATTAINED IN THE DRAINAGE AREA AS APPROVED BY THE CITY.

City of Colorado Springs Stormwater Quality	Figure IP-1 Filter Fabric Inlet Protection Construction Detail and Maintenance Requirements



STRAW BALE INLET PROTECTION
NTS

STRAW BALE INLET PROTECTION NOTES

INSTALLATION REQUIREMENTS

1. INLET PROTECTION SHALL BE INSTALLED IMMEDIATELY AFTER CONSTRUCTION OF INLET.

2. BALES ARE TO BE PLACED IN A SINGLE ROW AROUND THE INLET WITH THE END OF THE BALES TIGHTLY ABUTTING ONE ANOTHER.

3. SEE STRAW BALE BARRIER FIGURE SBB-2 FOR INSTALLATION REQUIREMENTS.

MAINTENANCE REQUIREMENTS

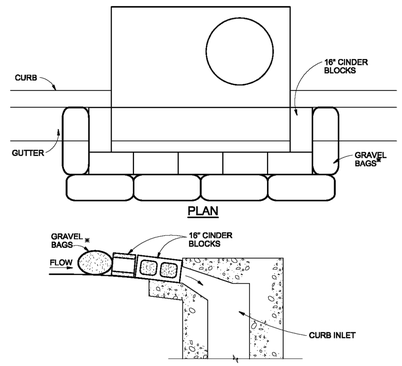
1. CONTRACTOR SHALL INSPECT STRAW BALE INLET PROTECTION IMMEDIATELY AFTER EACH RAINFALL, AT LEAST DAILY DURING PROLONGED RAINFALL, AND WEEKLY DURING PERIODS NO RAINFALL.

2. DAMAGED OR INEFFECTIVE INLET PROTECTION SHALL PROMPTLY BE REPAIRED, REPLACING BALES IF NECESSARY, AND UNENTRENCHED BALES NEED TO BE REPAIRED WITH COMPACTED BACKFILL MATERIAL.

3. SEDIMENT SHALL BE REMOVED FROM BEHIND STRAW BALES WHEN IT ACCUMULATES TO APPROXIMATELY 1/3 THE HEIGHT OF THE BARRIER.

4. INLET PROTECTION SHALL BE REMOVED WHEN ADEQUATE VEGETATIVE COVER IS ATTAINED WITHIN THE DRAINAGE AREA AS APPROVED BY THE CITY.

City of Colorado Springs Stormwater Quality	Figure IP-2 Straw Bale Inlet Protection Construction Detail and Maintenance Requirements



BLOCK AND GRAVEL BAG*CURB INLET PROTECTION
NTS

BLOCK AND GRAVEL BAG*CURB INLET PROTECTION NOTES

INSTALLATION REQUIREMENTS

1. INLET PROTECTION SHALL BE INSTALLED IMMEDIATELY AFTER CONSTRUCTION OF INLET.

2. CONCRETE BLOCKS ARE TO BE LAID AROUND THE INLET IN A SINGLE ROW ON THEIR SIDES, ABUTTING ONE ANOTHER WITH THE OPEN ENDS OF THE BLOCK FACING OUTWARD.

3. GRAVEL BAGS ARE TO BE PLACED AROUND THE CONCRETE BLOCKS CLOSELY ABUTTING ONE ANOTHER SO THERE ARE NO GAPS.

4. GRAVEL BAGS ARE TO CONTAIN WASHED SAND OR GRAVEL APPROXIMATELY 3/4 INCH IN DIAMETER.

5. BAGS ARE TO BE MADE OF 1/4" INCH WIRE MESH (USED WITH GRAVEL ONLY) OR GEOTEXTILE.

MAINTENANCE REQUIREMENTS

1. CONTRACTOR SHALL INSPECT INLET PROTECTION IMMEDIATELY AFTER EACH RAINFALL, AT LEAST DAILY DURING PROLONGED RAINFALL AND WEEKLY DURING PERIODS NO RAINFALL.

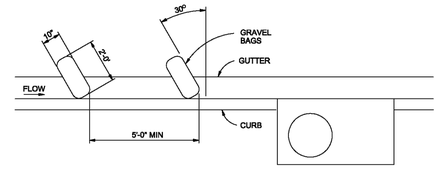
2. DAMAGED OR INEFFECTIVE INLET PROTECTION SHALL PROMPTLY BE REPAIRED OR REPLACED.

3. SEDIMENT SHALL BE REMOVED WHEN SEDIMENT HAS ACCUMULATED TO APPROXIMATELY 1/2 THE DESIGN DEPTH OF THE TRAP.

4. INLET PROTECTION SHALL BE REMOVED WHEN ADEQUATE VEGETATIVE COVER IS ATTAINED WITHIN THE DRAINAGE AREA AS APPROVED BY THE CITY.

* AN ALTERNATE 3/4" TO 1" GRAVEL FILTER OVER A WIRE SCREEN MAY BE USED IN PLACE OF GRAVEL BAGS. THE WIRE MESH SHALL EXTEND ABOVE THE TOP OF THE CONCRETE BLOCKS AND THE GRAVEL PLACED OVER THE WIRE SCREEN TO THE TOP OF THE CONCRETE BLOCKS.

City of Colorado Springs Stormwater Quality	Figure IP-3 Block & Gravel Bag Curb Inlet Protection Construction Detail and Maintenance Requirements



CURB SOCK INLET PROTECTION
NTS

CURB SOCK INLET PROTECTION NOTES

INSTALLATION REQUIREMENTS

1. INLET PROTECTION SHALL BE INSTALLED IMMEDIATELY AFTER CONSTRUCTION OF INLET.

2. SOCK IS TO BE MADE OF 1/4 INCH WIRE MESH (USED WITH GRAVEL ONLY) OR GEOTEXTILE.

3. WASHED SAND OR GRAVEL 3/4 INCH TO 4 INCHES IN DIAMETER IS PLACED INSIDE THE SOCK.

4. PLACEMENT OF THE SOCK IS TO BE 30 DEGREES FROM PERPENDICULAR IN THE OPPOSITE DIRECTION OF FLOW.

5. SOCKS ARE TO BE FLUSH WITH THE CURB AND SPACED AT A MINIMUM 5 FEET APART.

6. AT LEAST 2 CURB SOCKS IN SERIES IS REQUIRED.

MAINTENANCE REQUIREMENTS

1. CONTRACTOR SHALL INSPECT INLET PROTECTION IMMEDIATELY AFTER EACH RAINFALL, AT LEAST DAILY DURING PROLONGED RAINFALL AND WEEKLY DURING PERIODS NO RAINFALL.

2. DAMAGED OR INEFFECTIVE INLET PROTECTION SHALL PROMPTLY BE REPAIRED OR REPLACED.

3. SEDIMENT SHALL BE REMOVED FROM BEHIND THE SOCK WHEN GUTTER WIDTH IS FILLED.

4. INLET PROTECTION SHALL BE REMOVED WHEN ADEQUATE VEGETATIVE COVER IS ATTAINED WITHIN THE DRAINAGE AREA AS APPROVED BY THE CITY.

City of Colorado Springs Stormwater Quality	Figure IP-4 Curb Sock Inlet Protection Construction Detail and Maintenance Requirements

RECOMMENDED ANNUAL GRASSES

SPECIES (COMMON NAME)	GROWTH SEASON	SEEDING DATE	POUNDS OF PURE LIVE SEED (PLS) (PLS/ACRE)	PLANTING DEPTH (INCHES)
1. OATS	COOL	MARCH 16 - APRIL 30	35-50	1-2
2. SPRING WHEAT	COOL	MARCH 16 - APRIL 30	25-35	1-2
3. SPRING BARLEY	COOL	MARCH 16 - APRIL 30	25-35	1-2
4. ANNUAL RYEGRASS	COOL	MARCH 16 - JUNE 30	10-15	1/2
5. MILLET	WARM	MAY 16 - JULY 15	3-15	1/2-3/4
6. SUDANGRASS	WARM	MAY 16 - JULY 15	5-10	1/2-3/4
7. SORGHUM	WARM	MAY 16 - JULY 15	5-10	1/2-3/4
8. WINTER WHEAT	COOL	SEPTEMBER 1 - 30	20-35	1-2
9. WINTER BARLEY	COOL	SEPTEMBER 1 - 30	20-35	1-2
10. WINTER RYE	COOL	SEPTEMBER 1 - 30	20-35	1-2
11. TRITICALE	COOL	SEPTEMBER 1 - 30	25-40	1-2

THIS TABLE WAS TAKEN FROM UDFCD FOR RECOMMENDED ANNUAL GRASSES FOR THE DENVER METROPOLITAN AREA. THIS TABLE MAY BE USED UNLESS A SITE-SPECIFIC SEED MIX IS REQUESTED AND APPROVED.

TABLE TS-1

TEMPORARY SEEDING NOTES

INSTALLATION REQUIREMENTS

1. DISTURBED AREAS ARE TO BE SEEDED WITHIN 21 DAYS AFTER CONSTRUCTION ACTIVITY OR GRADING ENDS IF SEASON ALLOWS.

2. IF NECESSARY, SOIL IS TO BE CONDITIONED FOR PLANT GROWTH BY APPLYING TOPSOIL, FERTILIZER, OR LIME.

3. SOIL IS TO BE TILLED IMMEDIATELY PRIOR TO APPLYING SEEDS. COMPACT SOILS ESPECIALLY NEED TO BE LOOSENED.

4. SEEDBED DEPTH IS TO BE 4 INCHES FOR SLOPES FLATTER THAN 2:1, AND 1 INCH FOR SLOPES STEEPER THAN 2:1.

5. ANNUAL GRASSES LISTED IN TABLE TS-1 ARE TO BE USED FOR TEMPORARY SEEDING. SEED MIXES ARE NOT TO CONTAIN ANY NOXIOUS WEED SEEDS INCLUDING RUSSIAN OR CANADIAN THISTLE, KNAPWEED, PURPLE LOOSESTRIFE, EUROPEAN BINDWEED, JOHNSON GRASS, AND LEAFY SPURGE.

6. TABLE TS-1 ALSO PROVIDES REQUIREMENTS FOR SEEDING RATES, SEEDING DATES, AND PLANTING DEPTHS FOR THE APPROVED TYPES OF ANNUAL GRASSES.

7. SEEDING IS TO BE APPLIED USING MECHANICAL TYPE DRILLS EXCEPT WHERE SLOPES ARE STEEP OR ACCESS IS LIMITED THEN HYDRAULIC SEEDING MAY BE USED.

8. ALL SEEDED AREAS ARE TO BE MULCHED (SEE FACTSHEET ON MULCHING).

9. IF HYDRAULIC SEEDING IS USED THEN HYDRAULIC MULCHING SHALL BE DONE SEPARATELY TO AVOID SEEDS BECOMING ENCAPSULATED IN THE MULCH.

MAINTENANCE REQUIREMENTS

1. REGULAR INSPECTIONS ARE TO BE MADE OF ALL SEEDED AREAS TO ENSURE GROWTH.

2. AREAS WHERE GROWTH IS NOT OCCURRING QUICKLY OR THE MULCH HAS BEEN REMOVED SHALL BE RE-SEEDED AS SOON AS POSSIBLE AND RE-MULCHED IF NEEDED.

3. SEEDED AREAS ARE NOT TO BE DRIVEN OVER WITH CONSTRUCTION EQUIPMENT OR VEHICLES.

City of Colorado Springs Stormwater Quality	Figure TS-1 Temporary Seeding Construction Detail and Maintenance Requirements

MULCHING NOTES

INSTALLATION REQUIREMENTS

1. ALL DISTURBED AREAS MUST BE MULCHED WITHIN 21 DAYS AFTER FINAL GRADE AND SEEDED AREAS ARE TO BE MULCHED WITHIN 24 HOURS AFTER SEEDING.

2. MATERIAL USED FOR MULCH CAN BE CERTIFIED CLEAN, WEED- AND SEED-FREE LONG STEMMED FIELD OR MARSH HAY, OR STRAW OF OATS, BARLEY, WHEAT, RYE, OR TRITICALE CERTIFIED BY THE COLORADO DEPARTMENT OF AGRICULTURE WEED FREE FORAGE CERTIFICATION PROGRAM.

3. HYDRAULIC MULCHING MATERIAL SHALL CONSIST OF VIRGIN WOOD FIBER MANUFACTURED FROM CLEAN WHOLE WOOD CHIPS. WOOD CHIPS CANNOT CONTAIN ANY GROWTH OR GERMINATION INHIBITORS OR BE PRODUCED FROM RECYCLED MATERIAL. GRAVEL CAN ALSO BE USED.

4. MULCH IS TO BE APPLIED EVENLY AT A RATE OF 2 TONS PER ACRE.

5. MULCH IS TO BE ANCHORED EITHER BY CRIMPING (TUCKING MULCH FIBERS 4 INCHES INTO THE SOIL), USING NETTING (USED ON SMALL AREAS WITH STEEP SLOPES), OR WITH A TACKIFIER.

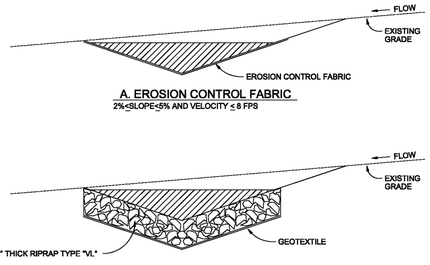
6. HYDRAULIC MULCHING AND TACKIFIERS ARE NOT TO BE USED IN THE PRESENCE OF FREE SURFACE WATER.

MAINTENANCE REQUIREMENTS

1. REGULAR INSPECTIONS ARE TO BE MADE OF ALL MULCHED AREAS.

2. MULCH IS TO BE REPLACED IMMEDIATELY IN THOSE AREAS IT HAS BEEN REMOVED, AND IF NECESSARY THE AREA SHOULD BE RESEEDED.

City of Colorado Springs Stormwater Quality	Figure MU-1 Mulching Construction Detail and Maintenance Requirements



SWALE LINING
NTS

SWALE LINING NOTES

INSTALLATION REQUIREMENTS

1. REFER TO THE EROSION CONTROL BLANKETS FACTSHEET FOR PROPER INSTALLATION OF EROSION CONTROL FABRIC LINING.

2. SWALES WITH EASILY ERODIVE SOILS AND SLOPES LESS THAN 2%, SHALL BE LINED WITH EROSION CONTROL FABRIC.

3. VELOCITIES FOR EROSION CONTROL FABRICS SHALL NOT EXCEED 8 FPS. SWALES WITH VELOCITIES GREATER THAN 8 FPS SHALL BE LINED WITH RIP RAP.

MAINTENANCE REQUIREMENTS

1. CONTRACTOR SHALL INSPECT SWALE LININGS AFTER EACH RAINFALL, AT LEAST DAILY DURING PROLONGED RAINFALL AND WEEKLY DURING PERIODS OF NO RAINFALL.

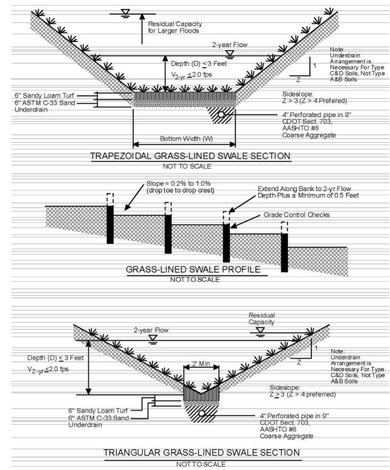
2. DAMAGED LININGS SHALL IMMEDIATELY BE REPAIRED.

3. REFER TO THE EROSION CONTROL BLANKETS FACTSHEET FOR PROPER MAINTENANCE.

4. DISPLACED RIPRAP OR COARSE AGGREGATE IS TO BE REPLACED AS SOON AS POSSIBLE.

5. SWALE LININGS ARE TO REMAIN IN PLACE AND BE PROPERLY MAINTAINED UNTIL THE TEMPORARY SWALE IS REMOVED.

City of Colorado Springs Stormwater Quality	Figure TSW-3 Swale Linings Construction Detail and Maintenance



811
48 HOURS BEFORE YOU DIG, CALL UTILITY NOTIFICATION CENTER OF COLORADO (UNCO)

GAS, ELECTRIC, TELEPHONE, CATV, AND PANHANDLE EASTERN PIPELINE LOCATIONS

SCALE VERIFICATION
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET
SCALE ACCORDINGLY

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	EL PASO COUNTY SDP SUBMITTAL	5/03/23	JS/RG
2	EPC SUBMITTAL #2	8/14/23	JS
3	EPC SUBMITTAL #3	9/12/23	JS
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Del Norte • Wheat Ridge
303-293-8107 • www.rgengineers.com

PUMP HOUSE SIX UTILITY BUILDING
description

EROSION CONTROL DETAILS

prepared for
PAINT BRUSH HILLS METROPOLITAN DISTRICT
9985 TOWNER AVENUE
PEYTON, CO 80831

DRAWN BY: JS
DESIGNED BY: JS/RG
JOB NUMBER: 1070.0026
DATE: 9/12/23
SCALE: NONE
DRAWING DESCRIPTION: EC DETAILS
SHEET NO: 5 of 5
3

2023 Financial Assurance Estimate Form
(with pre-plat construction)

Updated: 12/8/2022

PROJECT INFORMATION		
Paint Brush Hills Pumphouse 6 Site Development Plan	9/12/2023	PPR-2318
Project Name	Date	PCD File No.

Description	Quantity	Units	Unit Cost		Total	(with Pre-Plat Construction) % Complete	Remaining	
SECTION 1 - GRADING AND EROSION CONTROL (Construction and Permanent BMPs)								
Earthwork								*
less than 1,000; $5,300 min	340	CY	$ 8.00	=	$ 5,300.00		$ 5,300.00	*
1,000-5,000; $8,000 min		CY	$ 6.00	=	$ -		$ -	*
5,001-20,000; $30,000 min		CY	$ 5.00	=	$ -		$ -	*
20,001-50,000; $100,000 min		CY	$ 3.50	=	$ -		$ -	*
50,001-200,000; $175,000 min		CY	$ 2.50	=	$ -		$ -	*
greater than 200,000; $500,000 min		CY	$ 2.00	=	$ -		$ -	*
Permanent Erosion Control Blanket	86.0	SY	$ 8.00	=	$ 688.00		$ 688.00	*
Permanent Seeding (inc. noxious weed mgmnt.) & Mulching	0.5	AC	$ 1,875.00	=	$ 937.50		$ 937.50	*
Permanent Pond/BMP (provide engineer's estimate)		EA		=	$ -		$ -	*
Concrete Washout Basin	1	EA	$ 1,089.00	=	$ 1,089.00		$ 1,089.00	
Inlet Protection	2	EA	$ 202.00	=	$ 404.00		$ 404.00	
Rock Check Dam		EA	$ 605.00	=	$ -		$ -	
Safety Fence		LF	$ 3.00	=	$ -		$ -	
Sediment Basin		EA	$ 2,132.00	=	$ -		$ -	
Sediment Trap		EA	$ 500.00	=	$ -		$ -	
Silt Fence	327	LF	$ 3.00	=	$ 981.00		$ 981.00	
Slope Drain		LF	$ 40.00		$ -		$ -	
Straw Bale		EA	$ 31.00	=	$ -		$ -	
Straw Wattle/Rock Sock	0	LF	$ 7.00	=	$ -		$ -	
Surface Roughening		AC	$ 250.00		$ -		$ -	
Temporary Erosion Control Blanket		SY	$ 3.00	=	$ -		$ -	
Temporary Seeding and Mulching		AC	$ 1,666.00	=	$ -		$ -	
Vehicle Tracking Control	1	EA	$ 2,867.00	=	$ 2,867.00		$ 2,867.00	
				=	$ -		$ -	
[insert items not listed but part of construction plans]				=	$ -		$ -	
		MAINTENANCE (35% of Construction BMPs)		=	$ 1,488.20		$ 1,488.20	
* - Subject to defect warranty financial assurance. A minimum of 20% shall be retained until final acceptance (MAXIMUM OF 80% COMPLETE ALLOWED)		**Section 1 Subtotal**		**=**	**$ 13,754.70**		**$ 13,754.70**	
SECTION 2 - PUBLIC IMPROVEMENTS *								
ROADWAY IMPROVEMENTS								*
Construction Traffic Control		LS		=	$ -		$ -	*
Aggregate Base Course (135 lbs/cf)		Tons	$ 34.00	=	$ -		$ -	*
Aggregate Base Course (135 lbs/cf)		CY	$ 61.00		$ -		$ -	*
Asphalt Pavement (3" thick)		SY	$ 17.00		$ -		$ -	*
Asphalt Pavement (4" thick)		SY	$ 23.00		$ -		$ -	*
Asphalt Pavement (6" thick)		SY	$ 35.00		$ -		$ -	*
Asphalt Pavement (147 lbs/cf) _" thick		Tons	$ 106.00	=	$ -		$ -	*
Raised Median, Paved		SF	$ 10.00	=	$ -		$ -	*
Regulatory Sign/Advisory Sign		EA	$ 364.00	=	$ -		$ -	*
Guide/Street Name Sign		EA		=	$ -		$ -	*
Epoxy Pavement Marking		SF	$ 16.00	=	$ -		$ -	*
Thermoplastic Pavement Marking		SF	$ 28.00	=	$ -		$ -	*
Barricade - Type 3		EA	$ 241.00	=	$ -		$ -	*
Delineator - Type I		EA	$ 29.00	=	$ -		$ -	*
Curb and Gutter, Type A (6" Vertical)		LF	$ 35.00	=	$ -		$ -	*
Curb and Gutter, Type B (Median)		LF	$ 35.00	=	$ -		$ -	*
Curb and Gutter, Type C (Ramp)		LF	$ 35.00	=	$ -		$ -	*
4" Sidewalk (common areas only)		SY	$ 58.00	=	$ -		$ -	*
5" Sidewalk		SY	$ 72.00	=	$ -		$ -	*
6" Sidewalk		SY	$ 87.00	=	$ -		$ -	*
8" Sidewalk		SY	$ 116.00		$ -		$ -	*
Pedestrian Ramp		EA	$ 1,390.00	=	$ -		$ -	*
Cross Pan, local (8" thick, 6' wide to include return)		LF	$ 73.00	=	$ -		$ -	*
Cross Pan, collector (9" thick, 8' wide to include return)		LF	$ 111.00		$ -		$ -	*
Curb Opening with Drainage Chase		EA	$ 1,790.00	=	$ -		$ -	*
Guardrail Type 3 (W-Beam)		LF	$ 60.00	=	$ -		$ -	*
Guardrail Type 7 (Concrete)		LF	$ 87.00	=	$ -		$ -	*
Guardrail End Anchorage		EA	$ 2,538.00	=	$ -		$ -	*
Guardrail Impact Attenuator		EA	$ 4,556.00	=	$ -		$ -	*
Sound Barrier Fence (CMU block, 6' high)		LF	$ 95.00		$ -		$ -	*
Sound Barrier Fence (panels, 6' high)		LF	$ 97.00	=	$ -		$ -	*
Electrical Conduit, Size =		LF	$ 20.00	=	$ -		$ -	*
Traffic Signal, (provide engineer's estimate)		EA		=	$ -		$ -	*

PROJECT INFORMATION		
Paint Brush Hills Pumphouse 6 Site Development Plan	9/12/2023	PPR-2318
Project Name	Date	PCD File No.

Description	Quantity	Units	Unit Cost		Total	(with Pre-Plat Construction) % Complete	Remaining	
				=	$ -		$ -	
[insert items not listed but part of construction plans]				=	$ -		$ -	*
STORM DRAIN IMPROVEMENTS								*
Concrete Box Culvert (M Standard), Size (W x H)		LF		=	$ -		$ -	*
18" Reinforced Concrete Pipe		LF	$ 76.00	=	$ -		$ -	*
24" Reinforced Concrete Pipe		LF	$ 91.00	=	$ -		$ -	*
30" Reinforced Concrete Pipe		LF	$ 114.00	=	$ -		$ -	*
36" Reinforced Concrete Pipe		LF	$ 140.00	=	$ -		$ -	*
42" Reinforced Concrete Pipe		LF	$ 187.00	=	$ -		$ -	*
48" Reinforced Concrete Pipe		LF	$ 228.00	=	$ -		$ -	*
54" Reinforced Concrete Pipe		LF	$ 297.00	=	$ -		$ -	*
60" Reinforced Concrete Pipe		LF	$ 348.00	=	$ -		$ -	*
66" Reinforced Concrete Pipe		LF	$ 402.00	=	$ -		$ -	*
72" Reinforced Concrete Pipe		LF	$ 460.00	=	$ -		$ -	*
18" Corrugated Steel Pipe		LF	$ 98.00	=	$ -		$ -	*
24" Corrugated Steel Pipe		LF	$ 112.00	=	$ -		$ -	*
30" Corrugated Steel Pipe		LF	$ 143.00	=	$ -		$ -	*
36" Corrugated Steel Pipe		LF	$ 171.00	=	$ -		$ -	*
42" Corrugated Steel Pipe		LF	$ 197.00	=	$ -		$ -	*
48" Corrugated Steel Pipe		LF	$ 207.00	=	$ -		$ -	*
54" Corrugated Steel Pipe		LF	$ 304.00	=	$ -		$ -	*
60" Corrugated Steel Pipe		LF	$ 328.00	=	$ -		$ -	*
66" Corrugated Steel Pipe		LF	$ 397.00	=	$ -		$ -	*
72" Corrugated Steel Pipe		LF	$ 467.00	=	$ -		$ -	*
78" Corrugated Steel Pipe		LF	$ 537.00	=	$ -		$ -	*
84" Corrugated Steel Pipe		LF	$ 642.00	=	$ -		$ -	*
Flared End Section (FES) RCP Size = (unit cost = 6x pipe unit cost)		EA		=	$ -		$ -	*
Flared End Section (FES) CSP Size = (unit cost = 6x pipe unit cost)		EA		=	$ -		$ -	*
End Treatment- Headwall		EA		=	$ -		$ -	*
End Treatment- Wingwall		EA		=	$ -		$ -	*
End Treatment - Cutoff Wall		EA		=	$ -		$ -	*
Curb Inlet (Type R) L=5', Depth < 5'		EA	$ 6,703.00	=	$ -		$ -	*
Curb Inlet (Type R) L=5', 5' ≤ Depth < 10'		EA	$ 8,715.00	=	$ -		$ -	*
Curb Inlet (Type R) L =5', 10' ≤ Depth < 15'		EA	$ 10,092.00	=	$ -		$ -	*
Curb Inlet (Type R) L =10', Depth < 5'		EA	$ 9,224.00	=	$ -		$ -	*
Curb Inlet (Type R) L =10', 5' ≤ Depth < 10'		EA	$ 9,507.00	=	$ -		$ -	*
Curb Inlet (Type R) L =10', 10' ≤ Depth < 15'		EA	$ 11,901.00	=	$ -		$ -	*
Curb Inlet (Type R) L =15', Depth < 5'		EA	$ 11,995.00	=	$ -		$ -	*
Curb Inlet (Type R) L =15', 5' ≤ Depth < 10'		EA	$ 12,858.00	=	$ -		$ -	*
Curb Inlet (Type R) L =15', 10' ≤ Depth < 15'		EA	$ 14,061.00	=	$ -		$ -	*
Curb Inlet (Type R) L =20', Depth < 5'		EA	$ 12,783.00	=	$ -		$ -	*
Curb Inlet (Type R) L =20', 5' ≤ Depth < 10'		EA	$ 14,109.00	=	$ -		$ -	*
Grated Inlet (Type C), Depth < 5'		EA	$ 5,611.00	=	$ -		$ -	*
Grated Inlet (Type D), Depth < 5'		EA	$ 6,931.00	=	$ -		$ -	*
Storm Sewer Manhole, Box Base		EA	$ 14,061.00	=	$ -		$ -	*
Storm Sewer Manhole, Slab Base		EA	$ 7,734.00	=	$ -		$ -	*
Geotextile (Erosion Control)		SY	$ 8.00	=	$ -		$ -	*
Rip Rap, d50 size from 6" to 24"		Tons	$ 97.00	=	$ -		$ -	*
Rip Rap, Grouted		Tons	$ 115.00	=	$ -		$ -	*
Drainage Channel Construction, Size (W x H)		LF	$ -	=	$ -		$ -	*
Drainage Channel Lining, Concrete		CY	$ 689.00	=	$ -		$ -	*
Drainage Channel Lining, Rip Rap		CY	$ 135.00	=	$ -		$ -	*
Drainage Channel Lining, Grass		AC	$ 1,776.00	=	$ -		$ -	
Drainage Channel Lining, Other Stabilization				=	$ -		$ -	*
				=	$ -		$ -	
[insert items not listed but part of construction plans]				=	$ -		$ -	
* - Subject to defect warranty financial assurance. A minimum of 20% shall be retained until final acceptance (MAXIMUM OF 80% COMPLETE ALLOWED)			**Section 2 Subtotal**	**=**	**$ -**		**$ -**	

PROJECT INFORMATION		
Paint Brush Hills Pumphouse 6 Site Development Plan	9/12/2023	PPR-2318
Project Name	Date	PCD File No.

Description	Quantity	Units	Unit Cost		Total	(with Pre-Plat Construction) % Complete	Remaining
SECTION 3 - COMMON DEVELOPMENT IMPROVEMENTS (Private or District and NOT Maintained by EPC)**							
ROADWAY IMPROVEMENTS							
				=	$ -		$ -
				=	$ -		$ -
				=	$ -		$ -
				=	$ -		$ -
				=	$ -		$ -
				=	$ -		$ -
STORM DRAIN IMPROVEMENTS (Exception: Permanent Pond/BMP shall be itemized under Section 1)							
				=	$ -		$ -
				=	$ -		$ -
				=	$ -		$ -
				=	$ -		$ -
				=	$ -		$ -
				=	$ -		$ -
WATER SYSTEM IMPROVEMENTS							
Water Main Pipe (PVC), Size 8"		LF	$ 78.00	=	$ -		$ -
Water Main Pipe (Ductile Iron), Size 8"		LF	$ 91.00	=	$ -		$ -
Gate Valves, 8"		EA	$ 2,247.00	=	$ -		$ -
Fire Hydrant Assembly, w/ all valves		EA	$ 7,978.00	=	$ -		$ -
Water Service Line Installation, inc. tap and valves		EA	$ 1,601.00	=	$ -		$ -
Fire Cistern Installation, complete		EA		=	$ -		$ -
				=	$ -		$ -
[insert items not listed but part of construction plans]				=	$ -		$ -
SANITARY SEWER IMPROVEMENTS							
Sewer Main Pipe (PVC), Size 8"		LF	$ 78.00	=	$ -		$ -
Sanitary Sewer Manhole, Depth < 15 feet		EA	$ 5,305.00	=	$ -		$ -
Sanitary Service Line Installation, complete		EA	$ 1,696.00	=	$ -		$ -
Sanitary Sewer Lift Station, complete		EA		=	$ -		$ -
				=	$ -		$ -
[insert items not listed but part of construction plans]				=	$ -		$ -
LANDSCAPING IMPROVEMENTS (For subdivision specific condition of approval, or PUD)							
Trees/Shrubs	20	EA	$ 250.00	=	$ 5,000.00		$ 5,000.00
Mulching	0.05	AC	$ 831.00	=	$ 38.57		$ 38.57
		EA		=	$ -		$ -
		EA		=	$ -		$ -
		EA		=	$ -		$ -
** - Section 3 is not subject to defect warranty requirements		**Section 3 Subtotal**		**=**	**$ 5,038.57**		**$ 5,038.57**

PROJECT INFORMATION		
Paint Brush Hills Pumphouse 6 Site Development Plan	9/12/2023	PPR-2318
Project Name	Date	PCD File No.

Description	Quantity	Units	Unit Cost		Total	(with Pre-Plat Construction) % Complete	Remaining
AS-BUILT PLANS (Public Improvements inc. Permanent WQCV BMPs)		LS		=	$ -		$ -
POND/BMP CERTIFICATION (inc. elevations and volume calculations)		LS		=	$ -		$ -

Total Construction Financial Assurance $ **18,793.27**
(Sum of all section subtotals plus as-builts and pond/BMP certification)

Total Remaining Construction Financial Assurance (with Pre-Plat Construction) $ **18,793.27**
(Sum of all section totals less credit for items complete plus as-builts and pond/BMP certification)

Total Defect Warranty Financial Assurance $ **1,385.10**
(20% of all items identified as (*). To be collateralized at time of preliminary acceptance)

Approvals

I hereby certify that this is an accurate and complete estimate of costs for the work as shown on the Grading and Erosion Control Plan and Construction Drawings associated with the Project.

COLORADO REGISTERED RICARDO J.F. GONZALES 14506 PROFESSIONAL ENGINEER

Engineer (P.E. Seal Required)

Approved by Owner / Applicant — Date 9/14/23

Approved
By: Gilbert LaForce, P.E.
Engineering Manager
Date: 09/28/2023 9:19:23 AM
El Paso County Department of Public Works

Ap...istrator — Date

3275 Akers Drive
Colorado Springs, CO 80922
Phone 719-520-6460
Fax 719-520-6879
www.elpasoco.com

EPC STORMWATER REVIEW COMMENTS IN ORANGE BOXES WITH BLACK TEXT

Y - Satisfies criteria

N - Needs to be addressed

Accepted for File
By: Gilbert LaForce, P.E.
Engineering Manager
Date: 09/28/2023 9:16:28 AM
El Paso County Department of Public Works

EL PASO COUNTY
GRADING AND EROSION CONTROL PLAN CHECKLIST

EPC Project Number: PPR2318

Revised: October 2021

		Applicant	EPC
1. GRADING AND EROSION CONTROL PLAN (complete form using Y, N, N/A in the "Applicant" column)			
a	Vicinity map	Y	Y
b	Adjacent city/town/jurisdictional boundaries, subdivision names, and property parcel numbers labeled	Y	Y
c	North arrow and acceptable scale (1"=20' to 1"=100')	Y	Y
d	Legend for all symbols used in the plan	Y	Y
e	Existing and proposed property lines. Proposed subdivision boundary for subdivision projects	Y	Y
f	All existing structures	Y	Y
g	All existing utilities	Y	Y
h	Construction site boundaries	Y	Y
i	Existing vegetation (notes are acceptable in cases where there is no notable vegetation, only grasses/weeds, or site has already been stripped)	Y	Y
j	FEMA 100-yr floodplain	Y	Y
k	Existing and proposed water courses including springs, streams, wetlands, detention ponds, stormwater quality structures, roadside ditches, irrigation ditches and other water surfaces. Show maintenance of pre-existing vegetation within 50 feet of a receiving water	Y	Y
l	Existing and proposed contours 2 feet or less (except for hillside)	Y	Y
m	Limits of disturbance delineating all anticipated areas of soil disturbance	Y	Y
n	Identify and protect areas outside of the construction site boundary with existing fencing, construction fencing or other methods as appropriate	Y	Y
o	Off-site grading clearly shown and called out	N/A	N/A
p	Areas of cut and fill identified	Y	Y
q	Conclusions from soils/geotechnical report and geologic hazards report incorporated in grading design (slopes, embankments, materials, mitigation, etc.)	Y	Y
r	Proposed slopes steeper than 3:1 with top and toe of slope delineated. Erosion control blanketing or other protective covering required	Y	Y
s	Stormwater flow direction arrows	Y	Y
t	Location of any dedicated asphalt / concrete batch plants	N/A	N/A
u	Areas used for staging, storage of building materials, soils (stockpiles) or wastes. The use of construction office trailers requires PCD permitting	Y	Y
v	All proposed temporary construction control measures, structural and non-structural. Temporary construction control measures shall be identified by phase of implementation to include" "initial," "interim," and "final" or shown on separate phased maps identifying each phase	Y	Y
w	Vehicle tracking provided at all construction entrances/exits. Construction fencing, barricades, and/or signage provided at access points not to be used for construction	Y	Y
x	Temporary sediment ponds provided for disturbed drainage areas greater than 1 acre	N/A	N/A

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		Applicant	EPC
y	Dewatering operations to include locations of diversion, pump and discharge(s) as anticipated at time of design	N/A	N/A
z	All proposed temporary construction control measure details. Custom or other jurisdiction's details used must meet or exceed EPC standards	Y	Y
aa	Any off-site stormwater control measure proposed for use by the project and not under the direct control or ownership of the Owner or Operator	Y	Y
bb	Existing and proposed permanent storm water management facilities, including areas proposed for stormwater infiltration or subsurface detention	Y	Y
cc	Existing and proposed easements (permanent and construction) including required off-site easements	N/A	N/A
dd	Retaining walls shall not to be located in County ROW unless approved via license agreement. A building permit from Regional Building Department is required for walls greater than or equal to 4 feet in height, series of walls, or walls supporting a surcharge and must be design by P.E.	N/A	N/A
ee	Plan certified by a Colorado Registered P.E., with EPC standard signature blocks for Engineer, Owner and EPC	Y	Y
ff	Engineer's Statement (for standalone GEC Plan): This Grading and Erosion Control Plan was prepared under my direction and supervision and is correct to the best of my knowledge and belief. Said Plan has been prepared according to the criteria established by the County for Grading and Erosion Control Plans. I accept responsibility for any liability caused by any negligent acts, errors or omissions on my part in preparing this plan. _____ _____ Engineer of Record Signature Date	Y	Y
gg	Engineer's Statement (for GEC Plan within Construction Drawing set): These detailed plans and specifications were prepared under my direction and supervision. Said plans and specifications have been prepared according to the criteria established by the County for detailed roadway, drainage, grading and erosion control plans and specifications, and said plans and specifications are in conformity with applicable master drainage plans and master transportation plans. Said plans and specifications meet the purposes for which the particular roadway and drainage facilities are designed and are correct to the best of my knowledge and belief. I accept responsibility for any liability caused by any negligent acts, errors or omissions on my part in preparation of these detailed plans and specifications. _____ _____ Engineer of Record Signature Date	N/A	N/A
hh	Owner's Statement (for standalone GEC Plan): I, the owner/developer have read and will comply with the requirements of the Grading and Erosion Control Plan. _____ _____ Owner Signature Date	Y	Y
ii	Owner's Statement (for GEC Plan within Construction Drawing set): I, the owner/developer have read and will comply with the requirements of the grading and erosion control plan and all of the requirements specified in these detailed plans and specifications. _____ _____ Owner Signature Date	N/A	N/A

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		Applicant	EPC
jj	El Paso County: County plan review is provided only for general conformance with County Design Criteria. The County is not responsible for the accuracy and adequacy of the design, dimensions, and/ or elevations which shall be confirmed at the job site. The County through the approval of this document assumes no responsibility for completeness and/ or accuracy of this document. Filed in accordance with the requirements of the El Paso County Land Development Code, Drainage Criteria Manual Volumes 1 and 2, and Engineering Criteria Manual, as amended. In accordance with ECM Section 1.12, these construction documents will be valid for construction for a period of 2 years from the date signed by the El Paso County Engineer. If construction has not started within those 2 years, the plans will need to be resubmitted for approval, including payment of review fees at the Planning and Community Development Director's discretion. _____ _____ Jennifer Irvine, P.E. Date County Engineer/ECM Administrator	Y	Y
2. ADDITIONAL REPORTS/PERMITS/DOCUMENTS			
a	Soils report / geotechnical investigation as appropriate for grading/utilities/drainage/road construction.	Y	
b	Use Agreement/easement between the Owner or Operator and other third party for use of all off-site grading or stormwater control measures, used by the owner or operator but not under their direct control or ownership.	Y	
c	Floodplain Development Permit	N/A	
d	USACE 404/wetlands permit/mitigation plan	N/A	
e	FEMA CLOMR	N/A	
f	State Engineer's permit/Notice Of Intent to Construct	N/A	
g	Stormwater Management Plan (SWMP)	Y	
h	Financial Assurance Estimate (FAE) (signed)	Y	
i	Erosion and Stormwater Quality Control Permit (ESQCP) (signed)	Y	
j	Pre-Development Site Grading Acknowledgement & Right of Access Form (signed)	N	
k	Conditions of Approval met?	Y	

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EL PASO COUNTY
GRADING AND EROSION CONTROL PLAN CHECKLIST

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		Applicant	EPC
3. STANDARD NOTES FOR EL PASO COUNTY GRADING AND EROSION CONTROL PLANS			
1	Stormwater discharges from construction sites shall not cause or threaten to cause pollution, contamination, or degradation of State Waters. All work and earth disturbance shall be done in a manner that minimizes pollution of any on-site or off-site waters, including wetlands.	Y	Y
2	Notwithstanding anything depicted in these plans in words or graphic representation, all design and construction related to roads, storm drainage and erosion control shall conform to the standards and requirements of the most recent version of the relevant adopted El Paso County standards, including the Land Development Code, the Engineering Criteria Manual, the Drainage Criteria Manual, and the Drainage Criteria Manual Volume 2. Any deviations from regulations and standards must be requested, and approved, in writing.	Y	Y
3	A separate Stormwater Management Plan (SMWP) for this project shall be completed and an Erosion and Stormwater Quality Control Permit (ESQCP) issued prior to commencing construction. Management of the SWMP during construction is the responsibility of the designated Qualified Stormwater Manager or Certified Erosion Control Inspector. The SWMP shall be located on-site at all times during construction and shall be kept up to date with work progress and changes in the field.	Y	Y
4	Once the ESQCP is approved and a “Notice to Proceed” has been issued, the contractor may install the initial stage erosion and sediment control measures as indicated on the approved GEC. A Preconstruction Meeting between the contractor, engineer, and El Paso County will be held prior to any construction. It is the responsibility of the applicant to coordinate the meeting time and place with County staff.	Y	Y
5	Control measures must be installed prior to commencement of activities that could contribute pollutants to stormwater. Control measures for all slopes, channels, ditches, and disturbed land areas shall be installed immediately upon completion of the disturbance.	Y	Y
6	All temporary sediment and erosion control measures shall be maintained and remain in effective operating condition until permanent soil erosion control measures are implemented and final stabilization is established. All persons engaged in land disturbance activities shall assess the adequacy of control measures at the site and identify if changes to those control measures are needed to ensure the continued effective performance of the control measures. All changes to temporary sediment and erosion control measures must be incorporated into the Stormwater Management Plan.	Y	Y
7	Temporary stabilization shall be implemented on disturbed areas and stockpiles where ground disturbing construction activity has permanently ceased or temporarily ceased for longer than 14 days.	Y	Y
8	Final stabilization must be implemented at all applicable construction sites. Final stabilization is achieved when all ground disturbing activities are complete and all disturbed areas either have a uniform vegetative cover with individual plant density of 70 percent of pre-disturbance levels established or equivalent permanent alternative stabilization method is implemented. All temporary sediment and erosion control measures shall be removed upon final stabilization and before permit closure.	Y	Y
9	All permanent stormwater management facilities shall be installed as designed in the approved plans. Any proposed changes that effect the design or function of permanent stormwater management structures must be approved by the ECM Administrator prior to implementation.	Y	Y

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		Applicant	EPC
10	Earth disturbances shall be conducted in such a manner so as to effectively minimize accelerated soil erosion and resulting sedimentation. All disturbances shall be designed, constructed, and completed so that the exposed area of any disturbed land shall be limited to the shortest practical period of time. Pre-existing vegetation shall be protected and maintained within 50 horizontal feet of a waters of the state unless shown to be infeasible and specifically requested and approved.	Y	Y
11	Compaction of soil must be prevented in areas designated for infiltration control measures or where final stabilization will be achieved by vegetative cover. Areas designated for infiltration control measures shall also be protected from sedimentation during construction until final stabilization is achieved. If compaction prevention is not feasible due to site constraints, all areas designated for infiltration and vegetation control measures must be loosened prior to installation of the control measure(s).	Y	Y
12	Any temporary or permanent facility designed and constructed for the conveyance of stormwater around, through, or from the earth disturbance area shall be a stabilized conveyance designed to minimize erosion and the discharge of sediment off-site.	Y	Y
13	Concrete wash water shall be contained and disposed of in accordance with the SWMP. No wash water shall be discharged to or allowed to enter State Waters, including any surface or subsurface storm drainage system or facilities. Concrete washouts shall not be located in an area where shallow groundwater may be present, or within 50 feet of a surface water body, creek or stream.	Y	Y
14	During dewatering operations, uncontaminated groundwater may be discharged on-site, but shall not leave the site in the form of surface runoff unless an approved State dewatering permit is in place.	Y	Y
15	Erosion control blanketing or other protective covering shall be used on slopes steeper than 3:1.	Y	Y
16	Contractor shall be responsible for the removal of all wastes from the construction site for disposal in accordance with local and State regulatory requirements. No construction debris, tree slash, building material wastes or unused building materials shall be buried, dumped, or discharged at the site.	Y	Y
17	Waste materials shall not be temporarily placed or stored in the street, alley, or other public way, unless in accordance with an approved Traffic Control Plan. Control measures may be required by El Paso County Engineering if deemed necessary, based on specific conditions and circumstances.	Y	Y
18	Tracking of soils and construction debris off-site shall be minimized. Materials tracked off-site shall be cleaned up and properly disposed of immediately.	Y	Y
19	The owner/developer shall be responsible for the removal of all construction debris, dirt, trash, rock, sediment, soil, and sand that may accumulate in roads, storm drains and other drainage conveyance systems and stormwater appurtenances as a result of site development.	Y	Y
20	The quantity of materials stored on the project site shall be limited, as much as practical, to that quantity required to perform the work in an orderly sequence. All materials stored on-site shall be stored in a neat, orderly manner, in their original containers, with original manufacturer's labels.	Y	Y
21	No chemical(s) having the potential to be released in stormwater are to be stored or used on-site unless permission for the use of such chemical(s) is granted in writing by the ECM Administrator. In granting approval for the use of such chemical(s), special conditions and monitoring may be required.	Y	Y
22	Bulk storage of allowed petroleum products or other allowed liquid chemicals in excess of 55 gallons shall require adequate secondary containment protection to contain all spills on-site and to prevent any spilled materials from entering State Waters, any surface or subsurface storm drainage system or other facilities.	Y	Y

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		Applicant	EPC
23	No person shall cause the impediment of stormwater flow in the curb and gutter or ditch except with approved sediment control measures.	Y	Y
24	Owner/developer and their agents shall comply with the "Colorado Water Quality Control Act" (Title 25, Article 8, CRS), and the "Clean Water Act" (33 USC 1344), in addition to the requirements of the Land Development Code, DCM Volume II and the ECM Appendix I. All appropriate permits must be obtained by the contractor prior to construction (1041, NPDES, Floodplain, 404, fugitive dust, etc.). In the event of conflicts between these requirements and other laws, rules, or regulations of other Federal, State, local, or County agencies, the most restrictive laws, rules, or regulations shall apply.	Y	Y
25	All construction traffic must enter/exit the site only at approved construction access points.	Y	Y
26	Prior to construction the permittee shall verify the location of existing utilities.	Y	Y
27	A water source shall be available on-site during earthwork operations and shall be utilized as required to minimize dust from earthwork equipment and wind.	Y	Y
28	The soils report for this site has been prepared by **[Company Name, Date of Report]** and shall be considered a part of these plans.	Y	Y
29	At least ten (10) days prior to the anticipated start of construction, for projects that will disturb one (1) acre or more, the owner or operator of construction activity shall submit a permit application for stormwater discharge to the Colorado Department of Public Health and Environment, Water Quality Division. The application contains certification of completion of a stormwater management plan (SWMP), of which this Grading and Erosion Control Plan may be a part. For information or application materials contact: Colorado Department of Public Health and Environment Water Quality Control Division WQCD – Permits 4300 Cherry Creek Drive South Denver, CO 80246-1530 Attn: Permits Unit	Y	Y
4. APPLICANT COMMENTS			
a			
b			
c			

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Revised: October 2021

		Applicant	EPC
5.	**CHECKLIST REVIEW CERTIFICATIONS**		
a	Engineer of Record: The Grading and Erosion Control Plan was prepared under my direction and supervision and is complete and correct to the best of my knowledge and belief. Said Plan has been prepared according to the criteria established by the County for Grading and Erosion Control Plans. _____ 7/6/23 Engineer of Record Signature Date	Y	Y
b	Review Engineer: The Grading and Erosion Control Plan was reviewed and found to meet the checklist requirements except where otherwise noted or allowed by an approved deviation request. **Engineering Review** *09/25/2023 10:47:54 AM* *dothartford* EPC Department of Public Works _____ _____ Review Engineer Date		

RG AND ASSOCIATES, LLC
Del Norte • Wheat Ridge

August 13,2023

Paint Brush Hills Metropolitan District
9985 Towner Avenue
Falcon, CO 80831

RE: Drainage Letter for Paint Brush Hills Metropolitan District's Pump House 6 within Paint Brush Hills Filing 12 Tract A and 14 Tract B

To Whom It May Concern:

The Paint Brush Hills Metropolitan District (PBHMD) is located in Peyton, Colorado in unincorporated El Paso County. This drainage conformance letter pertains to the PBHMD project called the Pump House 6 Site Development Plan (Site) and is located southeast of the intersection of Keynes Drive and Kingsbury Drive and is west of Rockingham Drive and Keating Drive within the Paint Brush Hills Filing No. 14. The Site is located in the NW ¼, Section 25, Township 12 South, Range 65 West of the 6th PM, County of El Paso, State of Colorado.

The Site was previously studied for drainage improvements as a part of the Final Drainage Report for Paint Brush Hills – Phase 2 (Filing No. 13 EDAPC File Number SF0538) which was prepared in October 2005 and with the latest revision date of June 2008. This site includes a small area in the northern portion of the Paint Brush Hills Filing 12, Tract A and Tract B of the Paint Brush Hills Filing No. 14. In general, the Site drains north-east to south-west toward the Detention Pond "C" in Tract A. This area is within sub- basins "XX2", "YY" and "ZZ" of the Filing No. 13 Final Drainage Report.

The Filing No. 13 Phase 2 site is planned for a single-family home development with over 550 homes (in the 2,000+ square foot range), a 10-acre elementary school site, a 6-acre community commercial site and 44 acres of trails and open space. The Filing 13 site has provided for regional detention and water quality for the overall site development.

The PBHMD Pump House 6 Site Development Plan (26' x 42') within the single-family development with its respective gravel access driveway out to Keynes Drive. The area of imperviousness for the site is the well house roof and associated concrete pads at 1,177 SF and gravel driveway at 4,888 SF, for a total of 6,065 SF of imperviousness.

This area was subsequently studied as a part of the Preliminary/Final for Paint Brush Hills Filing No. 14 (EDPAC File Number SF2024) dated March 2021. The PBHMD Pump House 6 Site Development Plan is primarily within sub-basin N and minor portions with sub-basin C and Sub-basin M of the Filing No. 14 Drainage Report. Sub-basin N appears to correspond to sub-basin ZZ and sub-basin YY from the Filing 13 Drainage Report. The summary of flows for Filing No. 13, Filing No. 14 and the proposed PHHMD Pump House 6 are shown in the following table.

Sub-Basin	Area (acres)	C_5	C_{100}	Q_5 (cfs)	Q_{100} (cfs)
XX2	5.72	0.35	0.45	7 cfs	16 cfs
YY	1.85	0.35	0.45	2 cfs	5 cfs
ZZ	7.01	0.30	0.40	6 cfs	13 cfs
Total (FDS Filing No 13)	14.85			15 cfs	34 cfs
C	11.80	0.28	0.48	9.2 cfs	28.6 cfs
M	2.53	0.27	0.48	2.6 cfs	7.8 cfs
N	8.94	0.20	0.44	6.2 cfs	23.0 cfs
Total (FDS Filing No 14)	23.27			18.0 cfs	59.6 cfs
C (proposed)	11.80	0.28	0.48	9.2 cfs	28.6 cfs
M (proposed)	2.53	0.27	0.48	2.6 cfs	7.8 cfs
N (proposed)	8.94	0.21	0.45	6.4 cfs	23.2 cfs
Total (PBHMD Pump 6)	23.27			18.2 cfs	59.8 cfs
Change in Flow				+0.2 cfs	+0.2 cfs

For the purposes these calculation C-value and rainfall intensities used in the Filing No. 14 Drainage Report were replicated for the PBHMD Pump House 6 plan to obtain comparable calculations. For sub-basin C and sub-basin M gravel driveway imperviousness in the amount 650 square-feet and 260 square-feet were added, respectively. The gravel driveway added were insignificant and did not have an impact upon either the imperviousness or flow rates for sub-basin C and sub-basin M. For sub-basin N the addition of 4,888 square-feet of gravel driveway and 1,177 square-feet roof /concrete increase the sub-basin imperviousness by 1.3-percent and increases the 5-year and 100-year flow rate both by 0.2 cfs.

The increase in imperviousness for sub-basin N by 1.3-percent translates to a 0.08-percent increase in imperviousness for the Detention Pond "C" and will have negligible impacts on the volume required and the water surface elevation (the difference change the pond volume requirement by approximately 400 cubic-feet or less than 0.1-percent).

Due to the minimal amount of imperviousness created by the proposed Pump House 6 and associated access drive, which were planned for with the development of the Paint Brush Hills Filing No. 14, it will not have any adverse drainage effects on any of the adjacent property and will not require any additional detention or water quality facilities.

Two drainage swales and associated riprap rundowns have been added to the site. The swale along the roadside ditch was designed to convey 2.2 cfs and the swale around the building was designed to convey 0.5 cfs. Both swales will be grass-lined until reach the side of the pond from there the swales will be riprap lined.

If you have any questions or concerns with drainage concepts associated with this proposed construction, please contact me at 303-293-8107.

Sincerely,

Gary E. Welp, P.E., CFM

Attachments

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.

09-12-2023
Date

Gary E, Welp, P.E., CFM #35850

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.

9/14/23
Date

[Name, Title]
[Business Name]
[Address]

District Manager
Paint Brush Hills Metropolitan District
9985 Towner Ave,
Falcon, CO 80831

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.

Coun

Approved
By: Gilbert LaForce, P.E.
Engineering Manager
Date: 09/28/2023 9:21:31 AM
El Paso County Department of Public Works

Date

Calculation of Peak Runoff using Rational Method

Designer: Gary E. Welp, PE, CFM
Company: RGA
Date: 8/13/2023
Project: Paintbrush Hills Well #12
Location: Peyton, CO

Version 2.00 released May 2017

ct UDFCD location for NOAA Atlas 14 Rainfall Depths from the pulldown list OR enter your own depths obtained from the NOAA website (click this

Cells of this color are for required user-
Cells of this color are for optional override values
Cells of this color are for calculated results based on

$\text{Computed } t_c = t_i + t_t$

$t_i = \frac{0.395(1.1 - C_5)\sqrt{L_i}}{S_i^{0.33}}$

$t_{minimum} = 5$ (urban)
$t_{minimum} = 10$ (non-urban)

$\text{Selected } t_c = \max\{t_{minimum}, \min(\text{Computed } t_c, \text{Regional } t_c)\}$

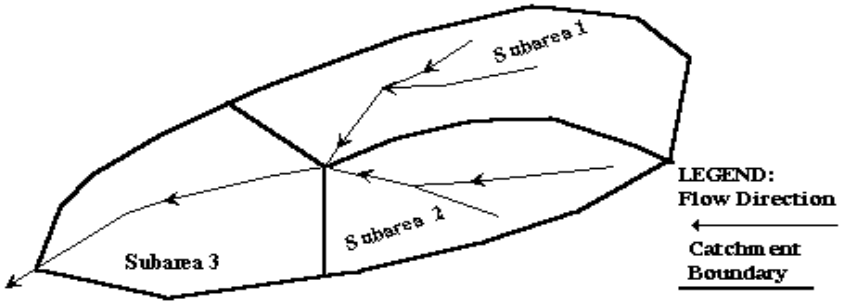
$Q(cfs) = CIA$

Subcatchment Name	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C						e of Concentra	Rainfall Intensity, I (in/hr)						Peak Flow, Q (cfs)					
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	Selected t_c (min)	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
C	11.80	B	20.0	0.13	0.15	0.22	0.37	0.44	0.52													
					0.26				0.48	20.5		3.0				5.0		9.2				28.6
N	8.94	B	15.0	0.09	0.11	0.18	0.34	0.41	0.50													
					0.21				0.45	15.6		3.4				5.8		6.4				23.2
M	2.53	B	20	0.13	0.15	0.22	0.37	0.44	0.52													
					0.27				0.48	12.3		3.8				6.5		2.6				7.8
Sub #1	0.11	B	18	0.11	0.13	0.20	0.36	0.43	0.51													
					0.28				0.50	5.0		5.2				8.8		0.2				0.5
Sub #2	0.46	B	26	0.17	0.20	0.27	0.41	0.47	0.55													
					0.33				0.53	5.0		5.2				8.8		0.8				2.2

Area-Weighted Runoff Coefficient Calculations

Version 2.00 released May 2017

Designer: Gary E. Welp, PE, CFM
Company: RGA
Date: 8/13/2023
Project: Paintbrush Hills Well #12
Location: Peyton, CO



Subcatchment Name
N

Cells of this color are for required user-input
Cells of this color are for optional override values
Cells of this color are for calculated results based on overrides

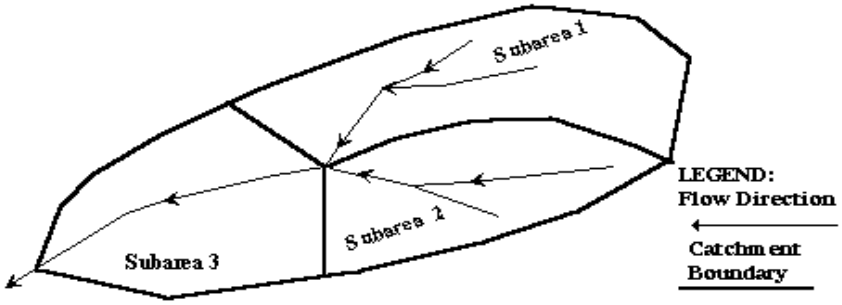
See sheet "Design Info" for imperviousness-based runoff coefficient values.

Sub-Area ID	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
landscape	3.07	B	2.0	0.01	0.01	0.07	0.26	0.34	0.44	0.54
					0.16				0.41	
gravel	0.09	B	80.0	0.64	0.67	0.70	0.75	0.77	0.80	0.83
					0.80				0.85	
building	0.03	B	90.0	0.74	0.76	0.78	0.81	0.83	0.84	0.87
					0.90				0.95	
residential	5.75	B	20.0	0.13	0.15	0.22	0.37	0.44	0.52	0.61
					0.22				0.46	
15										
Total Area (ac)	**8.94**		**Area-Weighted C**	**0.09**	**0.11**	**0.18**	**0.34**	**0.41**	**0.49**	**0.59**
			Area-Weighted Override C	**0.09**	**0.21**	**0.18**	**0.34**	**0.41**	**0.45**	**0.59**

Area-Weighted Runoff Coefficient Calculations

Version 2.00 released May 2017

Designer: Gary E. Welp, PE, CFM
Company: RGA
Date: 8/13/2023
Project: Paintbrush Hills Well #12
Location: Peyton, CO



Subcatchment Name
M

Cells of this color are for required user-input
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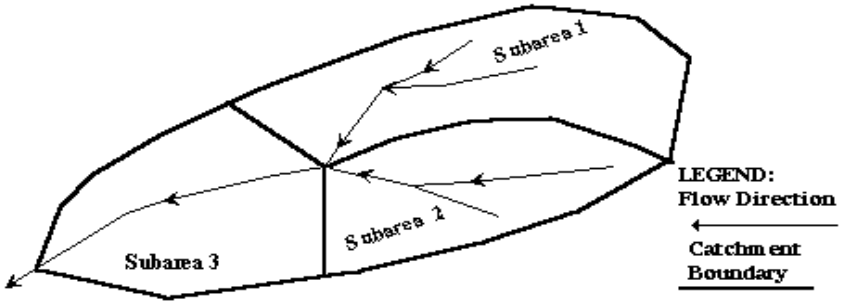
See sheet "Design Info" for imperviousness-based runoff coefficient values.

Sub-Area ID	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
landscape	0.00	B	2.0	0.01	0.01	0.07	0.26	0.34	0.44	0.54
					0.16				0.41	
gravel	0.01	B	80.0	0.64	0.67	0.70	0.75	0.77	0.80	0.83
					0.80				0.85	
building	0.00	B	90.0	0.74	0.76	0.78	0.81	0.83	0.84	0.87
					0.90				0.95	
residential	2.52	B	20.0	0.13	0.15	0.22	0.37	0.44	0.52	0.61
					0.27				0.48	
20										
Total Area (ac)	**2.53**		**Area-Weighted C**	**0.13**	**0.15**	**0.22**	**0.38**	**0.44**	**0.52**	**0.61**
			Area-Weighted Override C	**0.13**	**0.27**	**0.22**	**0.38**	**0.44**	**0.48**	**0.61**

Area-Weighted Runoff Coefficient Calculations

Version 2.00 released May 2017

Designer: Gary E. Welp, PE, CFM
Company: RGA
Date: 8/13/2023
Project: Paintbrush Hills Well #12
Location: Peyton, CO



Subcatchment Name
C

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Cells of this color are for optional override values
Cells of this color are for calculated results based on overrides

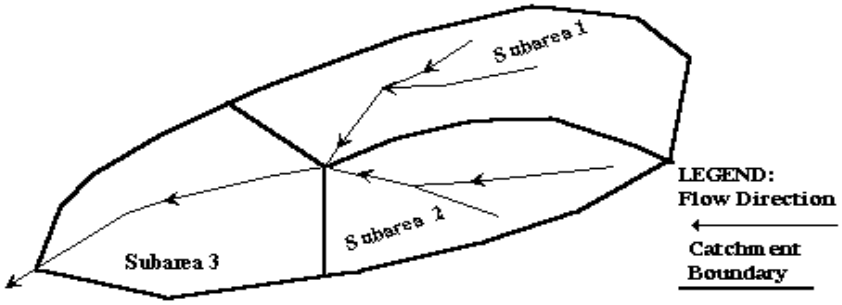
See sheet "Design Info" for imperviousness-based runoff coefficient values.

Sub-Area ID	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
landscape	0.00	B	2.0	0.01	0.01	0.07	0.26	0.34	0.44	0.54
					0.16				0.41	
gravel	0.01	B	80.0	0.64	0.67	0.70	0.75	0.77	0.80	0.83
					0.80				0.85	
building	0.00	B	90.0	0.74	0.76	0.78	0.81	0.83	0.84	0.87
					0.90				0.95	
residential	11.79	B	20.0	0.13	0.15	0.22	0.37	0.44	0.52	0.61
					0.26				0.48	
20										
Total Area (ac)	**11.80**		**Area-Weighted C**	**0.13**	**0.15**	**0.22**	**0.38**	**0.44**	**0.52**	**0.61**
			Area-Weighted Override C	**0.13**	**0.26**	**0.22**	**0.38**	**0.44**	**0.48**	**0.61**

Area-Weighted Runoff Coefficient Calculations

Version 2.00 released May 2017

Designer: Gary E. Welp, PE, CFM
Company: RGA
Date: 8/13/2023
Project: Paintbrush Hills Well #12
Location: Peyton, CO



Subcatchment Name
Sub #1

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Cells of this color are for calculated results based on overrides

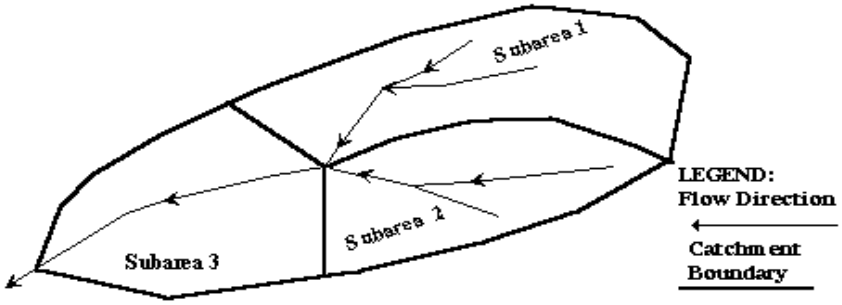
See sheet "Design Info" for imperviousness-based runoff coefficient values.

Sub-Area ID	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
landscape	0.07	B	2.0	0.01	0.01	0.07	0.26	0.34	0.44	0.54
					0.16				0.41	
gravel	0.00	B	80.0	0.64	0.67	0.70	0.75	0.77	0.80	0.83
					0.80				0.85	
building	0.01	B	90.0	0.74	0.76	0.78	0.81	0.83	0.84	0.87
					0.90				0.95	
residential	0.02	B	20.0	0.13	0.15	0.22	0.37	0.44	0.52	0.61
					0.26				0.48	
18										
Total Area (ac)	**0.11**		**Area-Weighted C**	**0.13**	**0.14**	**0.20**	**0.36**	**0.43**	**0.51**	**0.60**
			Area-Weighted Override C	**0.13**	**0.28**	**0.20**	**0.36**	**0.43**	**0.50**	**0.60**

Area-Weighted Runoff Coefficient Calculations

Version 2.00 released May 2017

Designer: Gary E. Welp, PE, CFM
Company: RGA
Date: 8/13/2023
Project: Paintbrush Hills Well #12
Location: Peyton, CO



Subcatchment Name
Sub #2

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Cells of this color are for optional override values
Cells of this color are for calculated results based on overrides

See sheet "Design Info" for imperviousness-based runoff coefficient values.

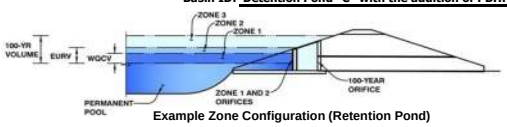
Sub-Area ID	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
landscape	0.15	B	2.0	0.01	0.01	0.07	0.26	0.34	0.44	0.54
					0.16				0.41	
gravel	0.09	B	80.0	0.64	0.67	0.70	0.75	0.77	0.80	0.83
					0.80				0.85	
building	0.00	B	90.0	0.74	0.76	0.78	0.81	0.83	0.84	0.87
					0.90				0.95	
residential	0.22	B	20.0	0.13	0.15	0.22	0.37	0.44	0.52	0.61
					0.26				0.48	
26										
Total Area (ac)	**0.46**		**Area-Weighted C**	**0.19**	**0.21**	**0.26**	**0.41**	**0.47**	**0.55**	**0.63**
			Area-Weighted Override C	**0.19**	**0.33**	**0.26**	**0.41**	**0.47**	**0.53**	**0.63**

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.06 (July 2022)

Project: **PBHMD Pump House #6**

Basin ID: **Detention Pond "C" with the addition of PBHMP Pump House #6**



Example Zone Configuration (Retention Pond)

Watershed Information

Selected BMP Type =	**EDB**	
Watershed Area =	137.58	acres
Watershed Length =	3,440	ft
Watershed Length to Centroid =	2,149	ft
Watershed Slope =	0.025	ft/ft
Watershed Imperviousness =	32.85%	percent
Percentage Hydrologic Soil Group A =	0.0%	percent
Percentage Hydrologic Soil Group B =	100.0%	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	

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

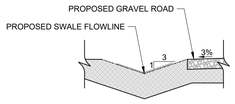
			Optional User Overrides	
Water Quality Capture Volume (WQCV) =	1.835	acre-feet		acre-feet
Excess Urban Runoff Volume (EURV) =	4.672	acre-feet		acre-feet
2-yr Runoff Volume (P1 = 1.19 in.) =	4.694	acre-feet	1.19	inches
5-yr Runoff Volume (P1 = 1.5 in.) =	7.422	acre-feet	1.50	inches
10-yr Runoff Volume (P1 = 1.75 in.) =	9.914	acre-feet	1.75	inches
25-yr Runoff Volume (P1 = 2 in.) =	13.611	acre-feet	2.00	inches
50-yr Runoff Volume (P1 = 2.25 in.) =	16.448	acre-feet	2.25	inches
100-yr Runoff Volume (P1 = 2.52 in.) =	20.193	acre-feet	2.52	inches
500-yr Runoff Volume (P1 = 3.14 in.) =	27.489	acre-feet		inches
Approximate 2-yr Detention Volume =	3.374	acre-feet		
Approximate 5-yr Detention Volume =	4.791	acre-feet		
Approximate 10-yr Detention Volume =	6.853	acre-feet		
Approximate 25-yr Detention Volume =	7.849	acre-feet		
Approximate 50-yr Detention Volume =	8.261	acre-feet		
Approximate 100-yr Detention Volume =	9.674	acre-feet		

Define Zones and Basin Geometry

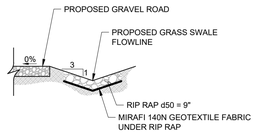
Select Zone 1 Storage Volume (Required) =		acre-feet
Select Zone 2 Storage Volume (Optional) =		acre-feet
Select Zone 3 Storage Volume (Optional) =		acre-feet
Total Detention Basin Volume =		acre-feet
Initial Surcharge Volume (ISV) =	user	ft^3
Initial Surcharge Depth (ISD) =	user	ft
Total Available Detention Depth (H_{total}) =	user	ft
Depth of Trickle Channel (H_{TC}) =	user	ft
Slope of Trickle Channel (S_{TC}) =	user	ft/ft
Slopes of Main Basin Sides (S_{main}) =	user	H:V
Basin Length-to-Width Ratio ($R_{L/W}$) =	user	
Initial Surcharge Area (A_{ISV}) =	user	ft^2
Surcharge Volume Length (L_{ISV}) =	user	ft
Surcharge Volume Width (W_{ISV}) =	user	ft
Depth of Basin Floor (H_{FLOOR}) =	user	ft
Length of Basin Floor (L_{FLOOR}) =	user	ft
Width of Basin Floor (W_{FLOOR}) =	user	ft
Area of Basin Floor (A_{FLOOR}) =	user	ft^2
Volume of Basin Floor (V_{FLOOR}) =	user	ft^3
Depth of Main Basin (H_{MAIN}) =	user	ft
Length of Main Basin (L_{MAIN}) =	user	ft
Width of Main Basin (W_{MAIN}) =	user	ft
Area of Main Basin (A_{MAIN}) =	user	ft^2
Volume of Main Basin (V_{MAIN}) =	user	ft^3
Calculated Total Basin Volume (V_{total}) =	**user**	acre-feet

Depth Increment = ft

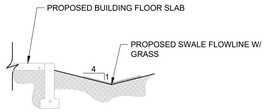
Stage - Storage Description	Stage (ft)	Optional Override Stage (ft)	Length (ft)	Width (ft)	Area (ft^2)	Optional Override Area (ft^2)	Area (acre)	Volume (ft^3)	Volume (ac-ft)
Top of Micropool	--	0.00	--	--	--	180	0.004		
	--	0.91	--	--	--	457	0.010	290	0.007
	--	1.91	--	--	--	14,185	0.326	7,611	0.175
	--	2.91	--	--	--	41,901	0.962	35,654	0.818
	--	3.91	--	--	--	61,466	1.411	87,337	2.005
	--	4.91	--	--	--	72,754	1.670	154,447	3.546
	--	5.91	--	--	--	81,398	1.869	231,523	5.315
	--	6.91	--	--	--	86,246	1.980	315,345	7.239
	--	7.91	--	--	--	92,877	2.132	404,906	9.295
	--	8.91	--	--	--	98,536	2.262	500,613	11.492
	--	9.91	--	--	--	105,513	2.422	602,637	13.835



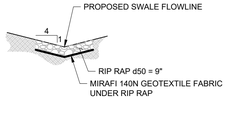
1 SECTION VIEW - GRAVEL DRIVE SWALE
NOT TO SCALE



2 SECTION VIEW - SIDE ROAD SWALE
NOT TO SCALE



3 SECTION VIEW - BUILDING SWALE
NOT TO SCALE



4 SECTION VIEW - POND SWALE
NOT TO SCALE

LEGEND

- EXISTING PROPERTY LINE
- EXISTING WATER LINE
- EXISTING SANITARY SEWER LINE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING STORM SEWER MANHOLE
- EXISTING WATER WELL
- EXISTING STORM PIPE
- EXISTING WATER VALVE
- EXISTING ELECTRIC MH
- EXISTING ELECTRIC MKR
- EXISTING ELECTRIC TRANSFORMER
- EXISTING ELECTRIC UNDERGROUND
- EXISTING FIBER OPTIC UNDERGROUND
- EXISTING CABLE TV UNDERGROUND
- EXISTING GAS LINE UNDERGROUND
- EXISTING CONT-MJR
- EXISTING CONT-MNR
- EXISTING SURFACE FLOW DIRECTION ARROW
- PROPOSED SURFACE FLOW DIRECTION ARROW
- PROPOSED SPOT ELEVATION
- PROPOSED CONT-MJR
- PROPOSED CONT-MNR
- PROPOSED PUMP HOUSE FOOTPRINT
- PROPOSED GRAVEL DRIVE
- PROPOSED RIP RAP
- PROPOSED CUT LINE
- PROPOSED FILL LINE
- PROPOSED SILT FENCE
- PROPOSED VEHICLE TRACKING CONTROL
- PROPOSED CONCRETE WASHOUT
- PROPOSED INLET PROTECTION
- PROPOSED SWALE
- PROPOSED EROSION CONTROL BLANKET
- PROPOSED SEEDING AND MULCHING
- PROPOSED STABILIZED STAGING AREA

ABBREVIATIONS

FL	FLOW LINE
FF	FINISHED FLOOR
FG	FINISHED GRADE
HP	HIGH POINT

AREAS OF CUT/FILL

CUT = 371.4 CY
FILL = 31.91 CY
NET = (CUT) 339.5 CY

NOTES:

1. EXISTING SITE HAS NO NOTABLE VEGETATION OTHER THAN FIELD GRASS AND WEEDS.
2. SITE IS NOT LOCATED WITHIN THE FEMA 100-YEAR FLOODPLAIN.
3. CONTRACTOR TO INSTALL EROSION CONTROL BLANKET (ECB) ON SLOPES OF 3:1 OR GREATER.
4. LOCATION OF STABILIZED STAGING AREA (SSA) TO BE DETERMINED AT THE PRE-CONSTRUCTION MEETING.
5. AREAS OUTSIDE OF THE CONSTRUCTION SITE BOUNDARY SHALL BE PROTECTED WITH CONSTRUCTION FENCING OR OTHER METHODS AS APPROPRIATE.
6. THERE ARE NO DEDICATED ASPHALT/CONCRETE BATCH PLANTS ON SITE.

N W E S

0 20' 40'
SCALE: 1" = 20'

811
48 HOURS BEFORE YOU DIG, CALL UTILITY NOTIFICATION CENTER OF COLORADO (UNCC)

GAS, ELECTRIC, TELEPHONE, CATV, AND PANHANDLE EASTERN PIPELINE LOCATIONS

SCALE VERIFICATION
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET SCALE ACCORDINGLY

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	EL PASO COUNTY SDP SUBMITTAL	5/03/23	JGS
2	EPC SUBMITTAL #2	8/4/23	JGS
.	.	.	.
.	.	.	.
.	.	.	.

RG AND ASSOCIATES, LLC
4885 Ward Road, Suite 100 • Wheat Ridge, CO 80033
Del Norte • Wheat Ridge
303-293-8107 • www.rgengineers.com

PUMP HOUSE SIX UTILITY BUILDING

GRADING AND EROSION CONTROL PLAN

prepared for
PAINT BRUSH HILLS METROPOLITAN DISTRICT
9985 TOWNER AVENUE
PEYTON, CO 80831

DRAWN BY:	DESIGNED BY:
JGS	JS/RG

JOB NUMBER: 1070.0026
DATE: 8/7/23
SCALE: 1" = 20'
DRAWING DESCRIPTION: GEC PLAN
SHEET NO: 5 of 6 — 2

Saved: 8/4/2023 By: JSCHNEIDER Plotted: 8/7/2023 10:16 AM
Filename: S:\1070 - PAINT BRUSH HILLS METROPOLITAN DISTRICT\1070.0014 - WELL #12\SITE DEVELOPMENT PLAN\DWG\XX GRADING PLAN.DWG

Worksheet for Triangular Channel - Roadside grass

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.027
Channel Slope	2.5 %
Left Side Slope	3.000 H:V
Right Side Slope	3.000 H:V
Discharge	2.20 cfs

Results	
Normal Depth	5.7 in
Flow Area	0.7 ft²
Wetted Perimeter	3.0 ft
Hydraulic Radius	2.7 in
Top Width	2.86 ft
Critical Depth	6.1 in
Critical Slope	1.8 %
Velocity	3.23 ft/s
Velocity Head	0.16 ft
Specific Energy	0.64 ft
Froude Number	1.166
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	5.7 in
Critical Depth	6.1 in
Channel Slope	2.5 %
Critical Slope	1.8 %

Worksheet for Triangular Channel - Roadside riprap rundown

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.040
Channel Slope	10.0 %
Left Side Slope	3.000 H:V
Right Side Slope	3.000 H:V
Discharge	2.20 cfs

Results	
Normal Depth	5.1 in
Flow Area	0.5 ft²
Wetted Perimeter	2.7 ft
Hydraulic Radius	2.4 in
Top Width	2.56 ft
Critical Depth	6.1 in
Critical Slope	4.0 %
Velocity	4.04 ft/s
Velocity Head	0.25 ft
Specific Energy	0.68 ft
Froude Number	1.545
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	5.1 in
Critical Depth	6.1 in
Channel Slope	10.0 %
Critical Slope	4.0 %

Worksheet for Triangular Channel - Building grass

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.027
Channel Slope	2.9 %
Left Side Slope	4.000 H:V
Right Side Slope	4.000 H:V
Discharge	0.50 cfs

Results	
Normal Depth	2.8 in
Flow Area	0.2 ft²
Wetted Perimeter	2.0 ft
Hydraulic Radius	1.4 in
Top Width	1.90 ft
Critical Depth	3.0 in
Critical Slope	2.2 %
Velocity	2.22 ft/s
Velocity Head	0.08 ft
Specific Energy	0.31 ft
Froude Number	1.136
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	2.8 in
Critical Depth	3.0 in
Channel Slope	2.9 %
Critical Slope	2.2 %

Worksheet for Triangular Channel - Building riprap rundown

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.040
Channel Slope	25.0 %
Left Side Slope	4.000 H:V
Right Side Slope	4.000 H:V
Discharge	0.50 cfs

Results	
Normal Depth	2.2 in
Flow Area	0.1 ft²
Wetted Perimeter	1.5 ft
Hydraulic Radius	1.1 in
Top Width	1.47 ft
Critical Depth	3.0 in
Critical Slope	4.9 %
Velocity	3.71 ft/s
Velocity Head	0.21 ft
Specific Energy	0.40 ft
Froude Number	2.161
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	2.2 in
Critical Depth	3.0 in
Channel Slope	25.0 %
Critical Slope	4.9 %

PRELIMINARY/FINAL DRAINAGE REPORT

FOR PAINT BRUSH HILLS FILING NO. 14

EL PASO COUNTY, COLORADO

MARCH 2021

Prepared for:

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Project #10-014
PCD Project # SP206 & SF2024

PRELIMINARY/FINAL DRAINAGE REPORT
FOR PAINT BRUSH HILLS FILING NO. 14

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APPENDIX

Vicinity Map
Soils Map
FIRM Panel W/Revised LOMR
Hydrologic Calculations
Hydraulic Calculations/EDB Calculations
Grading Erosion Control Plan
Reference Maps
Proposed and Existing Drainage Maps

Sewer plans but the flows (slightly higher) have been adjusted by this report the Preliminary/Final Drainage Report for Paint Brush Hills Filing No. 14" prepared by MS Civil Consultants, dated December 2020.

Detailed Drainage Discussion

Basins Tributary to Detention Pond C

Basin OS5C, 29.0 acres, (Q_5=25.5 cfs, Q_{100}=57.0 cfs), consist of existing developed 3.5-acre properties and streets. Runoff produced by the offsite area, are routed via existing roadside swales to a larger natural swale which carries flows south towards the north boundary of the subject site.

Basin A, 3.82 acres, (Q_5=2.9 cfs, Q_{100}=10.7 cfs), consists of a proposed single family residential lots and proposed 25' wide trail easement/Tract A. Developed flows within **Basin A** and offsite **Basin OS5C** are routed as surface runoff via an existing swale, in a 75' drainage easement, to **DP3** (Q_5=27.7 cfs, Q_{100}=65.3 cfs). Surface runoff at **DP3** will be collected and conveyed via a 36" RCP FES and 36" RCP pipe (**PR2**) to **DP4**. The existing swale shall be natural, except for the lower portion where it will be graded to the 36" RCP FES. This portion of the swale shall be maintained by the Paint Brush Hills Metropolitan District (see SC 150 Turf Reinforcement Mat in appendix). In the event of clogging, flows at **DP3** will over top the embankment and shall be conveyed via curb and gutter to **DP4**.

Basin J, 3.9 acres, (Q_5=3.0 cfs, Q_{100}=10.4 cfs), consists of proposed single family residential lots and proposed local residential streets. Surface runoff is routed via curb and gutter to **DP4** which will be collected by a proposed 10' Type R sump inlet. The intercepted flow (Q_5=3.0 cfs, Q_{100}=10.4 cfs) will be routed west via an 18" RCP pipe (**PR3**, Q_5=3.0 cfs, Q_{100}=10.4 cfs) to **PR5** (Q_5=31.0 cfs, Q_{100}=75.9 cfs), a 48" RCP. In the event of clogging, flows at **DP4** will over top the high point and be routed via curb and gutter to **DP10**.

Basin K, 0.8 acres, (Q_5=1.1 cfs, Q_{100}=2.7 cfs), consists of proposed single family residential lots and proposed local residential streets. Surface runoff is routed via curb and gutter to **DP5** which will be collected by a proposed 5' Type R sump inlet. The intercepted flow (Q_5=1.1 cfs, Q_{100}=2.7 cfs) will be routed west via an 18" RCP pipe (**PR4**, Q_5=1.1 cfs, Q_{100}=2.7 cfs) to **PR5** (Q_5=31.0 cfs, Q_{100}=75.5 cfs), a 48" RCP. In the event of clogging, flows at **DP5** will over top the high point and be routed via curb and gutter to **DP10**.

Basin OS5B, 13.4 acres, (Q_5=4.6 cfs, Q_{100}=25.8 cfs), consist of existing developed 3.5-acre properties and streets. Runoff produced by the offsite area, will sheet flow into **Basin D**.

Basin D, 5.2 acres, (Q_5=3.8 cfs, Q_{100}=14.0 cfs), consists of a proposed single family residential lots. Cumulative developed flows within **Basin D** and offsite **Basin OS5B** are routed via curb and gutter and side lot swales to **DP6.**

Basin E, 0.5 acres, (Q_5=2.3 cfs, Q_{100}=4.1 cfs), consists of a proposed local residential street. Surface runoff from **Basin E** will combine with flows from **Basin OS5B** and **Basin D** and will be routed via curb and gutter to **DP6** which will be collected by a proposed 15' Type R sump inlet. The cumulative flow from **DP6** and **DP7** at **DP8** is Q_5=10.7 cfs, Q_{100}=44.4. The 100-year flow will be split between the two inlets. The intercepted flow at **DP6** (Q_5=9.3 cfs, Q_{100}=22.2) will be routed west via a 24" RCP pipe (**PR7,** Q_5=9.2 cfs, Q_{100}=22.2 cfs) to **PR9**. In the event of clogging, flows at **DP6** will over top the high point in Country Manor Drive and be routed to **DP12**.

Basin F, 1.6 acres, (Q_5=1.9 cfs, Q_{100}=5.4 cfs), consists of proposed single family residential lots and proposed local residential streets. Surface runoff is routed via curb and gutter to **DP7** which will be

Basin M, 2.53 acres, (Q_5=2.6 cfs, Q_{100}=7.8 cfs), consists of proposed single family residential lots and proposed local residential streets. Flowby from **DP9, DP11, DP12** and surface runoff from **Basin M** will be routed via curb and gutter to **DP13** (Q_5=2.1 cfs, Q_{100}=21.3 cfs). See **Basin C** for discussion of intercepted flow.

Basin OS5A, 3.7 acres, (Q_5=1.5 cfs, Q_{100}=8.4 cfs), consist of existing developed 3.5-acre properties and streets. Runoff produced by the offsite area, will sheet flow onto **Basin C** which will be routed via side lot swales and curb and gutter to **DP14**.

Basin C, 11.8 acres, (Q_5=9.2 cfs, Q_{100}=28.6 cfs), consists of proposed single family residential lots and proposed local residential streets. Surface runoff is routed via curb and gutter to **DP14** (Q_5=10.3 cfs, Q_{100}=34.8 cfs). The combined flows from **DP13** and **DP14** will be captured by proposed dual 20' Type R sump inlets at **DP15** (Q_5=12.3 cfs, Q_{100}=55.4 cfs). The intercepted flow will be routed south via a 30" RCP pipe (**PR22,** Q_5=6.1 cfs, Q_{100}=27.7 cfs per side) and then south to a proposed 36" RCP pipe (**PR23,** (Q_5=12.3 cfs, Q_{100}=55.4 cfs). The combined flows from **PR21** and **PR23** will be routed south to a proposed 60" RCP pipe (**PR24,** Q_5=98.8 cfs, Q_{100}=269.2 cfs) which will ultimately outfall into a proposed concrete lined forebay in Pond C.

Basin B, 8.31 acres, (Q_5=5.6 cfs, Q_{100}=20.8 cfs), consists of the backyards of proposed single family residential lots. Minimal improvements to the backyards will be implemented and shall have split rail fences only along the rear and side lots lines. Surface runoff will be collected by a 2' wide swale (see Table 10-4 in appendix), within a 20'/30' easement, to **DP16** a CDOT type C inlet. The intercepted flow will be routed east via a 30" RCP pipe (**PR25,** Q_5=5.6 cfs, Q_{100}=20.8 cfs). The cumulative flows from PR24 and PR25 will combine and be routed south to a proposed 66" RCP pipe (**PR26,** Q_5=103.6 cfs, Q_{100}=287.2 cfs) which will outfall into a proposed concrete lined forebay in Pond C.

Basin N, 8.94 acres, (Q_5=6.2 cfs, Q_{100}=23.0 cfs), consists of backyards of proposed single family residential lots, backyards of existing residential lots from Paint Brush Hills Filing No. 12 and existing Pond C. The combined surface runoff and PR26 will be collected at **DP17** (existing **Pond C,** Q_5=108.8 cfs, Q_{100}=306.5 cfs). The existing Pond C will require modifications in order to function as an Full Spectrum Extended Detention Basin (EDB). These modifications will be addressed in the Street and Storm Sewer Construction drawings for Paint Brush Hills Filing No. 14. The proposed Detention Pond C functions to provide full spectrum detention and water quality for runoff calculated onsite and offsite flows. The pond is designed to treat approx 137.6 acres, and provide 1.839 ac-ft of WQCV storage, 4.673 ac-ft of EURV and 11.583 ac-ft of 100-year storage. The forebay, trickle channel micropool, outlet structure and pipe have been designed per the UDFCD manual using the MHFD Detention v4.03 workbook. The detention pond will be private and shall be maintained by the Paint Brush Hills Metropolitan District. Access shall be granted to the owner and El Paso County for maintenance of the private detention pond. A private maintenance agreement document shall accompany the submittal. In the event of clogging of the outlet structure, flows at **DP17** will over top the emergency spillway and outfall onto an existing swale, as it previously was designed. Per the Paint Brush Hills Filing No. 12 Construction Plans, an existing 20' x 20' rip rap pad (D_{50} = 18") has been constructed and is in general conformance with the present release rate. The existing riprap pad will dissipate energy and prevent local scour at the outlet. The peak release rate from **Pond C** (**#PR27**, Q5=22.6 cfs and Q100=92.8cfs ~an existing 48" RCP) outfalls into an existing swale. The flows exiting the site are less than the flows as stated in the MDDP of Q5=22 cfs and Q100=161 cfs. The proposed discharge from the subject site will not adversely affect the downstream infrastructure or affect water quality.

Basin Tributary to Adjacent Property to the West

Basin B1, 0.92 acres, (Q_5=0.6 cfs, Q_{100}=2.4 cfs), consists of portions of two backyards of proposed single family residential lots which will have minimal to no impervious surfaces and an upstream natural swale.

APPENDIX

HYDROLOGIC CALCULATIONS

PAINTBRUSH HILLS FILING NO. 14
FINAL DRAINAGE CALCULATIONS
(Area Runoff Coefficient Summary)

			IMPERVIOUS AREA/STREET			*LANDSCAPED/UNDEVELOPED*			*RESIDENTIAL*			*WEIGHTED*	
BASIN	**TOTAL AREA (Sq Ft)**	**TOTAL AREA *(Acres)***	**AREA *(Acres)***	**C_5**	**C_{100}**	**AREA *(Acres)***	**C_5**	**C_{100}**	**AREA *(Acres)***	**C_5**	**C_{100}**	**C_5**	**C_{100}**
*****RR***	*182952*	4.20	0.00	0.90	0.96	0.00	0.16	0.41	4.20	0.30	0.50	***0.30***	***0.50***
*****SS***	*131167*	3.01	0.00	0.90	0.96	0.00	0.16	0.41	3.01	0.30	0.50	***0.30***	***0.50***
*****OS1***	*193584*	4.44	0.00	0.90	0.96	0.00	0.16	0.41	4.44	0.30	0.50	***0.30***	***0.50***
****OO***	*1268037*	29.11	0.00	0.90	0.96	29.11	0.16	0.41	0.00	0.22	0.46	***0.16***	***0.41***
****TT***	*219978*	5.05	0.00	0.90	0.96	0.00	0.16	0.41	5.05	0.35	0.45	***0.35***	***0.45***
****UU***	*55321*	1.27	0.00	0.90	0.96	0.00	0.16	0.41	1.27	0.35	0.45	***0.35***	***0.45***
******OS-5***	*2008124*	46.10	0.00	0.90	0.96	0.00	0.16	0.41	46.10	0.30	0.40	***0.30***	***0.40***
OS5A	*159430*	3.66	0.00	0.90	0.96	0.00	0.16	0.41	3.66	0.11	0.37	***0.11***	***0.37***
OS5B	*585306*	13.44	0.00	0.90	0.96	0.00	0.16	0.41	13.44	0.11	0.37	***0.11***	***0.37***
OS5C	*1263404*	29.00	0.00	0.90	0.96	0.00	0.16	0.41	29.00	0.30	0.40	***0.30***	***0.40***
A	*166371*	3.82	0.00	0.90	0.96	0.00	0.16	0.41	3.82	0.20	0.44	***0.20***	***0.44***
B	*361915*	8.31	0.00	0.90	0.96	0.00	0.16	0.41	8.31	0.20	0.44	***0.20***	***0.44***
B1	*40214*	0.92	0.00	0.90	0.96	0.00	0.16	0.41	0.92	0.16	0.41	***0.16***	***0.41***
C	*514010*	11.80	0.00	0.90	0.96	0.00	0.16	0.41	11.80	0.26	0.48	***0.26***	***0.48***
D	*226401*	5.20	0.00	0.90	0.96	0.00	0.16	0.41	5.20	0.20	0.44	***0.20***	***0.44***
E	*21364*	0.49	0.49	0.90	0.96	0.00	0.16	0.41	0.00	0.20	0.44	***0.90***	***0.96***
F	*70330*	1.61	0.00	0.90	0.96	0.00	0.16	0.41	1.61	0.30	0.50	***0.30***	***0.50***
G	*531342*	12.20	0.00	0.90	0.96	0.00	0.16	0.41	12.20	0.35	0.52	***0.35***	***0.52***
H	*469586*	10.78	0.00	0.90	0.96	0.00	0.16	0.41	10.78	0.35	0.52	***0.35***	***0.52***
I	*554956*	12.74	0.00	0.90	0.96	0.00	0.16	0.41	12.74	0.35	0.52	***0.35***	***0.52***
J	*169859*	3.90	0.00	0.90	0.96	0.00	0.16	0.41	3.90	0.22	0.45	***0.22***	***0.45***
K	*32632*	0.75	0.00	0.90	0.96	0.00	0.16	0.41	0.75	0.36	0.54	***0.36***	***0.54***
L	*146850*	3.37	0.00	0.90	0.96	0.00	0.16	0.41	3.37	0.36	0.54	***0.36***	***0.54***
M	*110207*	2.53	0.00	0.90	0.96	0.00	0.16	0.41	2.53	0.27	0.48	***0.27***	***0.48***
N	*389341*	8.94	0.00	0.90	0.96	3.19	0.16	0.41	5.75	0.22	0.46	***0.20***	***0.44***

**** Values taken from "Final Drainage Report for Paint Brush Hills Filing 13E" (*FDRPBH-13E) prepared by Classic Consulting Engineers and Surveyors, dated Sept 2018***

***** Revised from "Final Drainage Report for Paint Brush Hills Filing 13E" (**PDRPBH13E) prepared by Classic Consulting Engineers and Surveyors, dated Sept 2018***

****** "Final Drainage Report for Paint Brush Hills-Phase 2 (Filing 13)" (FDRPBH-PH2-13) prepared by Classic Consulting Engineers and Surveyors, revised June 2008***

Calculated by: GT
Date: 3/12/2021
Checked by: VAS

PAINTBRUSH HILLS FILING NO. 14
FINAL DRAINAGE CALCULATIONS
(Area Drainage Summary)

From Area Runoff Coefficient Summary				*OVERLAND*				*STREET / CHANNEL FLOW*				*Time of Travel*		*INTENSITY **		*TOTAL FLOWS*	
BASIN	**AREA TOTAL**	C_5	C_{100}	C_5	**Length**	**Height**	T_C	**Length**	**Slope**	**Velocity**	T_t	**TOTAL**	**CHECK**	I_5	I_{100}	Q_5	Q_{100}
	(Acres)	*From DCM Table 5-1*			*(ft)*	*(ft)*	*(min)*	*(ft)*	*(%)*	*(fps)*	*(min)*	*(min)*	*(min)*	*(in/hr)*	*(in/hr)*	*(c.f.s.)*	*(c.f.s.)*
Proposed Area Drainage Summary																	
*****RR***	4.20	0.30	0.50	0.25												***8.0***	***17.0***
*****SS***	3.01	0.30	0.50	0.25	170	3.4	16.5	800	3.9%	6.9	1.9	18.4	15.4	3.1	5.6	***2.8***	***8.4***
*****OS1***	4.44	0.30	0.50	0.30	100	5	8.5	616	1.0%	2.0	5.1	13.6	14.0	3.7	6.2	***4.9***	***13.7***
****OO***	29.11	0.16	0.41	0.16												***22.0***	***51.0***
****TT***	5.05	0.35	0.45	0.25	180	3.6	17.0	150	1.5%	4.3	0.6	17.6	11.8	3.2	5.7	***5.7***	***13.0***
****UU***	1.27	0.35	0.45	0.25	180	3.6	17.0	475	2.5%	5.5	1.4	18.4	13.6	3.1	5.6	***1.4***	***3.2***
******OS-5***	46.10	0.30	0.40	0.30												***14.0***	***32.0***
OS5A	3.66	0.11	0.37	0.11	100	2	14.2	527	1.5%	1.8	4.8	19.0	13.5	3.7	6.2	***1.5***	***8.4***
OS5B	13.44	0.11	0.37	0.11	100	2	14.2	1684	1.5%	1.8	15.3	29.5	19.9	3.1	5.2	***4.6***	***25.8***
OS5C	29.00	0.30	0.40	0.30	100	2	11.5	2110	1.0%	2.0	17.6	29.1	22.3	2.9	4.9	***25.5***	***57.0***
A	3.82	0.20	0.44	0.20	100	4	10.3	373	3.2%	2.7	2.3	12.6	12.6	3.8	6.3	***2.9***	***10.7***
B	8.31	0.20	0.44	0.20	100	3	11.3	1063	3.2%	2.7	6.6	17.9	16.5	3.4	5.7	***5.6***	***20.8***
B1	0.92	0.16	0.41	0.16	100	3	11.8	265	2.6%	3.2	1.4	13.2	12.0	3.9	6.5	***0.6***	***2.4***
C	11.80	0.26	0.48	0.26	100	3	10.6	2030	2.6%	3.2	10.6	21.1	21.8	3.0	5.0	***9.2***	***28.6***
D	5.20	0.20	0.44	0.20	100	4	10.3	593	2.0%	2.1	4.7	14.9	13.9	3.6	6.1	***3.8***	***14.0***
E	0.49	0.90	0.96	0.90	10	0.2	0.9	471	2.0%	2.8	2.8	5.0	12.7	5.2	8.7	***2.3***	***4.1***
F	1.61	0.30	0.50	0.30	60	1.2	8.9	362	2.0%	2.8	2.1	11.0	12.3	4.0	6.7	***1.9***	***5.4***
G	12.20	0.35	0.52	0.35	100	2	10.8	1381	2.8%	3.3	6.9	17.7	18.2	3.3	5.5	***14.0***	***34.8***
H	10.78	0.35	0.52	0.35	100	2	10.8	1543	2.1%	2.9	8.9	19.6	19.1	3.2	5.3	***11.9***	***29.7***
I	12.70	0.35	0.52	0.35	100	2	10.8	1309	2.1%	2.9	7.5	18.3	17.8	3.3	5.5	***14.5***	***36.2***
J	3.90	0.22	0.45	0.22	100	2	12.6	799	1.9%	2.7	4.9	17.5	15.0	3.5	5.9	***3.0***	***10.4***
K	0.75	0.36	0.54	0.36	72	1.4	9.1	277	1.6%	2.5	1.8	10.9	11.9	4.0	6.7	***1.1***	***2.7***
L	3.37	0.36	0.54	0.36	75	1.5	9.2	1802	2.1%	2.9	10.4	19.6	20.4	3.1	5.2	***3.8***	***9.5***
M	2.53	0.27	0.48	0.27	100	2	11.9	318	2.1%	2.9	1.8	13.8	12.3	3.8	6.4	***2.6***	***7.8***
N	8.94	0.20	0.44	0.20	100	2	12.9	902	3.2%	3.6	4.2	17.1	15.6	3.5	5.8	***6.2***	***23.0***

Values taken from "Final Drainage Report for Paint Brush Hills Filing 13E" (*FDRPBH13E) prepared by Classic Consulting Engineers and Surveyors, dated Sept 2018

***** Revised from "Final Drainage Report for Paint Brush Hills Filing 13E" (**PDRPBH13E) prepared by Classic Consulting Engineers and Surveyors, dated Sept 2018***

****** "Final Drainage Report for Paint Brush Hills-Phase 2 (Filing 13)" (FDRPBH-PH2-13) prepared by Classic Consulting Engineers and Surveyors, revised June 2008***

Calculated by: GT

Date: 3/12/2021

ked by: VAS

HYDRAULIC CALCULATIONS / EDB WQCV CALCULATIONS

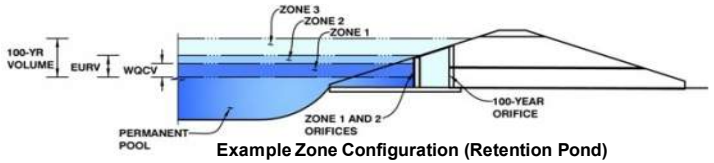
Weighted Percent Imperviousness of WQ Pond C				
Contributing Basins	***Area (Acres)***	***C_5***	***Impervious % (I)***	***(Acres)*(I)***
OS5A	3.66	0.11	5	18.30
OS5B	13.44	0.11	5	67.18
OS5C	29.00	0.30	40	1160.15
A	0.52	0.18	16	8.37
B	8.31	0.20	20	166.17
C	11.80	0.26	32	377.60
D	5.20	0.20	20	103.95
E	0.49	0.90	100	49.04
F	1.61	0.30	40	64.58
G	12.20	0.35	48	585.50
H	10.78	0.35	48	517.45
I	12.74	0.35	48	611.52
J	**7.19**	**0.22**	**25**	**179.81**
K	0.75	0.36	50	37.46
L	3.37	0.36	50	168.56
M	2.53	0.27	34	86.02
N	8.94	0.20	20	178.76
****TT***	5.05	0.35	25	126.25
Totals	***137.58***			***4506.69***
Imperviousness of WQ Pond C	***32.8***			

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.03 (May 2020)

Project: **Paint Brush Hills Filing No.14**

Basin ID: **FSD Pond C**



Example Zone Configuration (Retention Pond)

Watershed Information

Selected BMP Type =	**EDB**	
Watershed Area =	137.58	acres
Watershed Length =	3,440	ft
Watershed Length to Centroid =	2,149	ft
Watershed Slope =	0.025	ft/ft
Watershed Imperviousness =	32.80%	percent
Percentage Hydrologic Soil Group A =	0.0%	percent
Percentage Hydrologic Soil Group B =	100.0%	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	

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

			Optional User Overrides	
Water Quality Capture Volume (WQCV) =	1.834	acre-feet		acre-feet
Excess Urban Runoff Volume (EURV) =	4.664	acre-feet		acre-feet
2-yr Runoff Volume (P1 = 1.19 in.) =	4.688	acre-feet	1.19	inches
5-yr Runoff Volume (P1 = 1.5 in.) =	7.414	acre-feet	1.50	inches
10-yr Runoff Volume (P1 = 1.75 in.) =	9.906	acre-feet	1.75	inches
25-yr Runoff Volume (P1 = 2 in.) =	13.603	acre-feet	2.00	inches
50-yr Runoff Volume (P1 = 2.25 in.) =	16.440	acre-feet	2.25	inches
100-yr Runoff Volume (P1 = 2.52 in.) =	20.186	acre-feet	2.52	inches
500-yr Runoff Volume (P1 = 3.14 in.) =	27.480	acre-feet		inches
Approximate 2-yr Detention Volume =	3.368	acre-feet		
Approximate 5-yr Detention Volume =	4.783	acre-feet		
Approximate 10-yr Detention Volume =	6.844	acre-feet		
Approximate 25-yr Detention Volume =	7.840	acre-feet		
Approximate 50-yr Detention Volume =	8.251	acre-feet		
Approximate 100-yr Detention Volume =	9.664	acre-feet		

Define Zones and Basin Geometry

Zone 1 Volume (WQCV) =	1.834	acre-feet
Zone 2 Volume (EURV - Zone 1) =	2.831	acre-feet
Zone 3 Volume (100-year - Zones 1 & 2) =	5.000	acre-feet
Total Detention Basin Volume =	9.664	acre-feet
Initial Surcharge Volume (ISV) =	user	ft^3
Initial Surcharge Depth (ISD) =	user	ft
Total Available Detention Depth (H_{total}) =	user	ft
Depth of Trickle Channel (H_{TC}) =	user	ft
Slope of Trickle Channel (S_{TC}) =	user	ft/ft
Slopes of Main Basin Sides (S_{main}) =	user	H:V
Basin Length-to-Width Ratio ($R_{L/W}$) =	user	

Depth Increment = ft

	Stage - Storage Description	Stage (ft)	Optional Override Stage (ft)	Length (ft)	Width (ft)	Area (ft^2)	Optional Override Area (ft^2)	Area (acre)	Volume (ft^3)	Volume (ac-ft)
7190.09	**Top of Micropool**	--	0.00	--	--	--	180	0.004		
7191		--	0.91	--	--	--	457	0.010	290	0.007
		--	1.91	--	--	--	14,185	0.326	7,611	0.175
		--	2.91	--	--	--	41,901	0.962	35,654	0.818
		--	3.91	--	--	--	61,466	1.411	87,337	2.005
		--	4.91	--	--	--	72,754	1.670	154,447	3.546
7196.00		--	5.91	--	--	--	81,398	1.869	231,523	5.315
7197.00		--	6.91	--	--	--	86,246	1.980	315,345	7.239
7198.00		--	7.91	--	--	--	92,877	2.132	404,906	9.295
7199.00		--	8.91	--	--	--	98,536	2.262	500,613	11.492
7200		--	9.91	--	--	--	105,513	2.422	602,637	13.835
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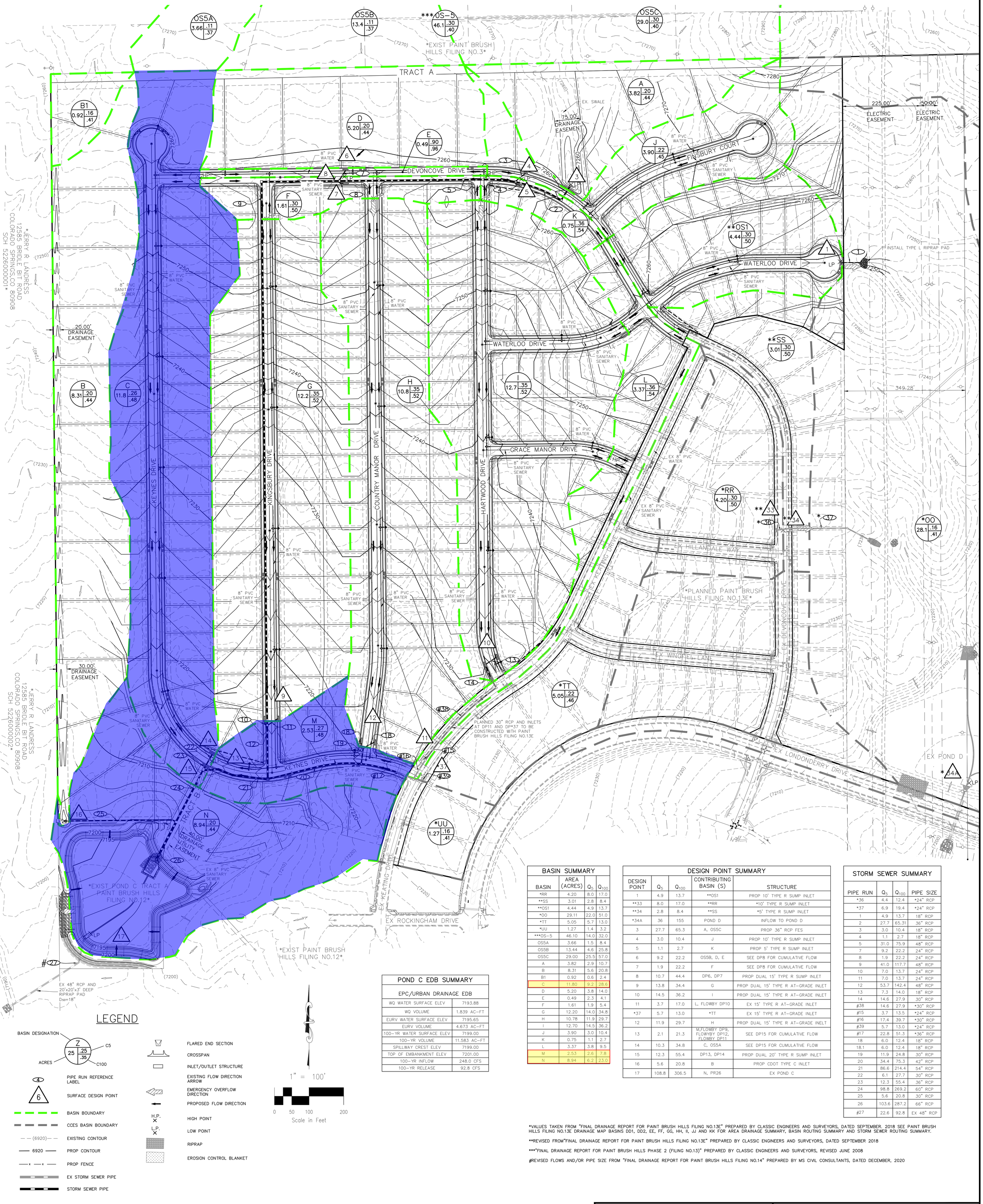
PAINT BRUSH HILLS FILING NO. 14

COUNTY OF EL PASO, STATE OF COLORADO

PROPOSED DRAINAGE MAP

MARCH 2021



LEGEND

- BASIN DESIGNATION (Z; 25; .25; .35; C5; C100; ACRES)
- PIPE RUN REFERENCE LABEL (4)
- SURFACE DESIGN POINT (6)
- BASIN BOUNDARY
- CCES BASIN BOUNDARY
- EXISTING CONTOUR (6920)
- PROP CONTOUR (6920)
- PROP FENCE
- EX STORM SEWER PIPE
- STORM SEWER PIPE
- FLARED END SECTION
- CROSSPAN
- INLET/OUTLET STRUCTURE
- EXISTING FLOW DIRECTION ARROW
- EMERGENCY OVERFLOW DIRECTION
- PROPOSED FLOW DIRECTION
- H.P. HIGH POINT
- L.P. LOW POINT
- RIPRAP
- EROSION CONTROL BLANKET

POND C EDB SUMMARY	
EPC/URBAN DRAINAGE EDB	
WQ WATER SURFACE ELEV	7193.88
WQ VOLUME	1.839 AC-FT
EURV WATER SURFACE ELEV	7195.65
EURV VOLUME	4.673 AC-FT
100-YR WATER SURFACE ELEV	7199.00
100-YR VOLUME	11.583 AC-FT
SPILLWAY CREST ELEV	7199.00
TOP OF EMBANKMENT ELEV	7201.00
100-YR INFLOW	248.0 CFS
100-YR RELEASE	92.8 CFS

BASIN SUMMARY			
BASIN	AREA (ACRES)	Q_5	Q_{100}
*RR	4.20	8.0	17.0
**SS	3.01	2.8	8.4
**OS1	4.44	4.9	13.7
*OO	29.11	22.0	51.0
*TT	5.05	5.7	13.0
*UU	1.27	1.4	3.2
***OS-5	46.10	14.0	32.0
OS5A	3.66	1.5	8.4
OS5B	13.44	4.6	25.8
OS5C	29.00	25.5	57.0
A	3.82	2.9	10.7
B	8.31	5.6	20.8
B1	0.92	0.6	2.4
C	11.80	9.2	28.6
D	5.20	3.8	14.0
E	0.49	2.3	4.1
F	1.61	1.9	5.4
G	12.20	14.0	34.8
H	10.78	11.9	29.7
I	12.70	14.5	36.2
J	3.90	3.0	10.4
K	0.75	1.1	2.7
L	3.37	3.8	9.5
M	2.53	2.6	7.8
N	8.94	6.2	23.0

DESIGN POINT SUMMARY				
DESIGN POINT	Q_5	Q_{100}	CONTRIBUTING BASIN (S)	STRUCTURE
1	4.9	13.7	**OS1	PROP 10' TYPE R SUMP INLET
**33	8.0	17.0	**RR	*10' TYPE R SUMP INLET
**34	2.8	8.4	**SS	*5' TYPE R SUMP INLET
*34A	36	155	POND D	INFLOW TO POND D
3	27.7	65.3	A, OS5C	PROP 36" RCP FES
4	3.0	10.4	J	PROP 10' TYPE R SUMP INLET
5	1.1	2.7	K	PROP 5' TYPE R SUMP INLET
6	9.2	22.2	OS5B, D, E	SEE DP8 FOR CUMULATIVE FLOW
7	1.9	22.2	F	SEE DP8 FOR CUMULATIVE FLOW
8	10.7	44.4	DP6, DP7	PROP DUAL 15' TYPE R SUMP INLET
9	13.8	34.4	G	PROP DUAL 15' TYPE R AT-GRADE INLET
10	14.5	36.2	I	PROP DUAL 15' TYPE R AT-GRADE INLET
11	3.7	17.0	L, FLOWBY DP10	EX 15' TYPE R AT-GRADE INLET
*37	5.7	13.0	*TT	EX 15' TYPE R AT-GRADE INLET
12	11.9	29.7	H	PROP DUAL 15' TYPE R AT-GRADE INELT
13	2.1	21.3	M,FLOWBY DP9, FLOWYBY DP12, FLOWBY DP11	SEE DP15 FOR CUMULATIVE FLOW
14	10.3	34.8	C, OS5A	SEE DP15 FOR CUMULATIVE FLOW
15	12.3	55.4	DP13, DP14	PROP DUAL 20' TYPE R SUMP INLET
16	5.6	20.8	B	PROP CDOT TYPE C INLET
17	108.8	306.5	N, PR26	EX POND C

STORM SEWER SUMMARY			
PIPE RUN	Q_5	Q_{100}	PIPE SIZE
*36	4.4	12.4	*24" RCP
*37	6.9	19.4	*24" RCP
1	4.9	13.7	18" RCP
2	27.7	65.31	36" RCP
3	3.0	10.4	18" RCP
4	1.1	2.7	18" RCP
5	31.0	75.9	48" RCP
7	9.2	22.2	24" RCP
8	1.9	22.2	24" RCP
9	41.0	117.7	48" RCP
10	7.0	13.7	24" RCP
11	7.0	13.7	24" RCP
12	53.7	142.4	48" RCP
13	7.3	14.0	18" RCP
14	14.6	27.9	30" RCP
#38	14.6	27.9	*30" RCP
#15	3.7	13.5	*24" RCP
#16	17.4	39.7	*30" RCP
#39	5.7	13.0	*24" RCP
#17	22.8	51.3	*36" RCP
18	6.0	12.4	18" RCP
18.1	6.0	12.4	18" RCP
19	11.9	24.8	30" RCP
20	34.4	75.3	42" RCP
21	86.6	214.4	54" RCP
22	6.1	27.7	30" RCP
23	12.3	55.4	36" RCP
24	98.8	269.2	60" RCP
25	5.6	20.8	30" RCP
26	103.6	287.2	66" RCP
#27	22.6	92.8	EX 48" RCP

*VALUES TAKEN FROM "FINAL DRAINAGE REPORT FOR PAINT BRUSH HILLS FILING NO.13E" PREPARED BY CLASSIC ENGINEERS AND SURVEYORS, DATED SEPTEMBER. 2018 SEE PAINT BRUSH HILLS FILING NO.13E DRAINAGE MAP BASINS DD1, DD2, EE, FF, GG, HH, II, JJ AND KK FOR AREA DRAINAGE SUMMARY, BASIN ROUTING SUMMARY AND STORM SEWER ROUTING SUMMARY.

**REVISED FROM"FINAL DRAINAGE REPORT FOR PAINT BRUSH HILLS FILING NO.13E" PREPARED BY CLASSIC ENGINEERS AND SURVEYORS, DATED SEPTEMBER 2018

***"FINAL DRAINAGE REPORT FOR PAINT BRUSH HILLS PHASE 2 (FILING NO.13)" PREPARED BY CLASSIC ENGINEERS AND SURVEYORS, REVISED JUNE 2008

#REVISED FLOWS AND/OR PIPE SIZE FROM "FINAL DRAINAGE REPORT FOR PAINT BRUSH HILLS FILING NO.14" PREPARED BY MS CIVIL CONSULTANTS, DATED DECEMBER, 2020

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20 BOULDER CRESCENT, SUITE 110
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485

PAINT BRUSH HILLS FILING NO. 14

PROPOSED DRAINAGE MAP

PROJECT NO. 10-014
DESIGNED BY: GT
DRAWN BY: CMN
CHECKED BY: VAS
SCALE: HORIZONTAL: 1"=100' VERTICAL: N/A
DATE: 03/12/2021
SHEET 1 OF 1
FDM

File: O:\10014A-PBH 14\PBH 14\dwg\Eng Exhibits\FDR Plan.dwg Plotstamp: 3/12/2021 9:59 AM

CLASSIC SM
CONSULTING
ENGINEERS & SURVEYORS

FINAL DRAINAGE REPORT FOR PAINT BRUSH HILLS – PHASE 2 (FILING NO. 13)

OCTOBER 2005
REVISED MARCH 2006
REVISED JULY 2006
REVISED JUNE 2008

PREPARED FOR:

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2053.21

CLASSIC
CONSULTING
ENGINEERS & SURVEYORS

FINAL DRAINAGE REPORT
FOR PAINT BRUSH HILLS – PHASE 2 (FILING NO. 13)

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DEVELOPED DRAINAGE CONDITIONS	Page 5
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EROSION CONTROL PLAN	Page 20
DRAINAGE/BRIDGE FEES	Page 20
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APPENDICES

VICINITY MAP

F.E.M.A. MAP

FINAL PLAT APPROVAL / EXTENSION LETTERS

HYDROLOGIC / HYDRAULIC CALCULATIONS

CHANNEL / DROP STRUCTURE CALCULATIONS

RIP-RAP CALCULATIONS

DRAINAGE MAP

Design Point 32 (Q_5 = 4 cfs and Q_{100} = 7 cfs) consists of developed flows from Basin NN. An existing 6' sump inlet exists at this location. Based on the previous study, this location was notated as design point 18A with a developed flow of (Q_5 = 8 cfs and Q_{100} = 15 cfs). Thus, the existing facility at this location continues to adequately handle both the 5-year and 100-year developed flows.

Design Point 34A (Q_5 = 46 cfs and Q_{100} = 106 cfs) consists of developed flows from Basins DD1, DD2, EE, OO, RR and SS. Existing dual 36" RCP storm sewers exist at this location. Based on the previous study, this location was notated as Basin OS-9 with a developed flow of (Q_5 = 50 cfs and Q_{100} = 113 cfs). Thus, the existing facilities at this location continue to adequately handle both the 5-year and 100-year developed flows.

Design Point 34B (Q_5 = 139 cfs and Q_{100} = 302 cfs) consists of developed flows from much of the inner development. At this location, dual 42" RCP culverts are designed to handle both the 5-yr. and 100-yr. developed flows and route them safely under the proposed roadway and into the existing Detention Pond B1 based on the final overlot grading plan.

Design Point 34C (Q_5 = 154 cfs and Q_{100} = 337 cfs) consists of developed flows from the main natural channel. The existing Detention Pond B1 exists at this location. Based on the previous study, the total developed inflow to this facility was (Q_5 = 149 cfs and Q_{100} = 326 cfs). This increase equates to around 3% of what was previously accounted for at this design point. Thus, the existing detention facility at this location continues to adequately handle both the 5-yr. and 100-yr. developed flows.

Design Point 34D (Q_5 = 89 cfs and Q_{100} = 207 cfs) consists of developed flows from the off-site basins to the north and the north west corner of the development. The existing Detention Pond C exists at this location. Based on the previous study, the total developed inflow to this facility was (Q_5 = 90 cfs and Q_{100} = 206 cfs). Thus, the existing detention facility at this location continues to adequately handle both the 5-yr. and 100-yr. developed flows.

developed flows, respectfully. These collected flows are then combined with the collected flows mentioned earlier within the 42" RCP storm sewer. Approaching this sump location, the street design grade is 1.5%, which equates to a street capacity of 12.92 cfs per side. (See Appendix for Street Capacity Calculations) Incidentally, the total flows at Design Point 43 flow from both directions into the sump condition. Thus, the maximum flow from one direction would be from Basin WW2 (Q_5 = 13 cfs and Q_{100} = 30 cfs), which meets the County criteria for street capacity. The maximum ponding at this location will be 1.0' and then the flows will overtop the highpoint at the intersection and travel around the corner. These combined flows within the 42" RCP storm sewer will then combine with the collected flows from Design Points 42, 43 and 44. A 54" RCP storm sewer will convey these total flows in a westerly direction towards Design Point 45.

Basins XX1 and XX2 are tributary to the sump condition at Design Points 45 (Q_5 = 7 cfs and Q_{100} = 16 cfs) and 46 (Q_5 = 11 cfs and Q_{100} = 26 cfs). At these locations a 6' Type R sump inlet and a 10' Type R sump inlet will be installed to collect both the 5-year and 100-year developed flows. These collected flows are then combined with the flows from the previous design points and a 54" RCP will then convey the total developed flows in a southerly direction through a drainage tract directly into the existing detention pond. A rip-rap dissipater will be installed to minimize erosion. The emergency overlflow route at this location is via a natural swale within the tract and then directly into the existing pond. As mentioned earlier, the total developed flows entering this existing facility is consistent with the previously approved Final Drainage Report for Paint Brush Hills Filing Nos. 10, 11 and 12.

HYDROLOGIC CALCULATIONS

Hydrologic calculations were performed using the City of Colorado Springs/El Paso County Drainage Criteria Manual, as revised in November 1991 and 1994. The Rational Method was used to estimate storm water runoff anticipated from design storms with 5-year and 100-year recurrence intervals.

APPENDIX

JOB NAME: *PAINT BRUSH HILLS - PHASE 2 (FILING NO. 13)*
JOB NUMBER: *2053.21*
DATE: *06/10/08*
CALCULATED BY: *MAW*

FINAL DRAINAGE REPORT ~ BASIN RUNOFF COEFFICIENT SUMMARY

BASIN	TOTAL AREA (AC)	IMPERVIOUS AREA / STREETS			LANDSCAPE/UNDEVELOPED AREAS			WEIGHTED		WEIGHTED CA	
		AREA (AC)	C(5)	C(100)	AREA (AC)	C(5)	C(100)	C(5)	C(100)	CA(5)	CA(100)
RR	4.20	0.00	0.90	0.95	4.20	0.40	0.55	0.40	0.55	1.68	2.31
SS	6.14	0.00	0.90	0.95	6.14	0.35	0.45	0.35	0.45	2.15	2.76
TT1	1.05	0.00	0.90	0.95	1.05	0.35	0.45	0.35	0.45	0.37	0.47
TT2	6.10	0.00	0.90	0.95	6.10	0.30	0.40	0.30	0.40	1.83	2.44
UU1	3.05	0.00	0.90	0.95	3.05	0.35	0.45	0.35	0.45	1.07	1.37
UU2	10.60	0.00	0.90	0.95	10.60	0.35	0.45	0.35	0.45	3.71	4.77
UU3	2.75	0.00	0.90	0.95	2.75	0.35	0.45	0.35	0.45	0.96	1.24
VV1	4.85	0.00	0.90	0.95	4.85	0.35	0.45	0.35	0.45	1.70	2.18
VV2	1.30	0.00	0.90	0.95	1.30	0.37	0.50	0.37	0.50	0.48	0.65
VV3	0.40	0.20	0.90	0.95	0.20	0.35	0.45	0.63	0.70	0.25	0.28
WW1	1.20	0.00	0.90	0.95	1.20	0.35	0.45	0.35	0.45	0.42	0.54
WW2	12.80	0.00	0.90	0.95	12.80	0.35	0.45	0.35	0.45	4.48	5.76
WW3	5.20	0.00	0.90	0.95	5.20	0.35	0.45	0.35	0.45	1.82	2.34
XX1	11.45	0.00	0.90	0.95	11.45	0.35	0.45	0.35	0.45	4.01	5.15
XX2	5.72	0.00	0.90	0.95	5.72	0.35	0.45	0.35	0.45	2.00	2.57
YY	1.85	0.00	0.90	0.95	1.85	0.35	0.45	0.35	0.45	0.65	0.83
ZZ	7.01	0.00	0.90	0.95	7.01	0.30	0.40	0.30	0.40	2.10	2.80
AAA	8.95	0.00	0.90	0.95	8.95	0.30	0.40	0.30	0.40	2.69	3.58
OS-1	16.30	0.00	0.90	0.95	16.30	0.30	0.40	0.30	0.40	4.89	6.52
OS-2	29.00	0.00	0.90	0.95	29.00	0.30	0.40	0.30	0.40	8.70	11.60
OS-3	10.28	0.00	0.90	0.95	10.28	0.35	0.45	0.35	0.45	3.60	4.63
OS-4	14.84	0.00	0.90	0.95	14.84	0.35	0.45	0.35	0.45	5.19	6.68
OS-5	3.28	0.00	0.90	0.95	3.28	0.35	0.45	0.45	0.55	1.48	1.80
OS-6	0.82	0.65	0.90	0.95	0.17	0.35	0.45	0.79	0.85	0.64	0.69
H-1	92.30	0.00	0.90	0.95	92.30	0.25	0.35	0.25	0.35	23.08	32.31
H-2	1.50	0.00	0.90	0.95	1.50	0.25	0.35	0.25	0.35	0.38	0.53
H-3	18.80	0.00	0.90	0.95	18.80	0.25	0.35	0.25	0.35	4.70	6.58
H-4	121.30	3.00	0.90	0.95	118.30	0.25	0.35	0.27	0.36	32.28	44.26
H-5	55.60	0.00	0.90	0.95	55.60	0.25	0.35	0.25	0.35	13.90	19.46
H-6	4.40	0.00	0.90	0.95	4.40	0.25	0.35	0.25	0.35	1.10	1.54
H-7	14.70	0.00	0.90	0.95	14.70	0.25	0.35	0.25	0.35	3.68	5.15

JOB NAME: *PAINT BRUSH HILLS - PHASE 2 (FILING NO. 13)*
JOB NUMBER: *2053.21*
DATE: *06/10/08*
CALC'D BY: *MAW*

FINAL DRAINAGE REPORT ~ BASIN RUNOFF SUMMARY

BASIN	WEIGHTED		OVERLAND				STREET / CHANNEL FLOW				Tc			TOTAL FLOWS	
	CA(5)	CA(100)	C(5)	Length (ft)	Height (ft)	Tc (min)	Length (ft)	Slope (%)	Velocity (fps)	Tc (min)	TOTAL (min)	I(5) (in/hr)	I(100) (in/hr)	Q(5) (cfs)	Q(100) (cfs)
RR	1.68	2.31	0.25	150	3	15.5	250	2.0%	4.9	0.8	16.3	3.33	5.92	6	14
SS	2.15	2.76	0.25	150	3	15.5	900	3.5%	6.5	2.3	17.8	3.20	5.68	7	16
TT1	0.37	0.47	0.25	60	0.6	12.3	350	1.0%	3.5	1.7	14.0	3.57	6.35	1	3
TT2	1.83	2.44	0.25	250	8	17.1	350	1.0%	3.5	1.7	18.8	3.11	5.53	6	13
UU1	1.07	1.37	0.25	60	1.2	9.8	900	3.0%	6.1	2.5	12.3	3.78	6.72	4	9
UU2	3.71	4.77	0.25	200	4	17.9	1200	3.0%	6.1	3.3	21.2	2.93	5.20	11	25
UU3	0.96	1.24	0.25	60	1.2	9.8	700	1.5%	4.3	2.7	12.5	3.75	6.66	4	8
VV1	1.70	2.18	0.25	200	8	14.2	350	1.5%	4.3	1.4	15.6	3.40	6.05	6	13
VV2	0.48	0.65	0.25	200	5	16.6	100	2.0%	4.9	0.3	16.9	3.27	5.81	2	4
VV3	0.25	0.28	0.25	30	1.5	5.1	200	2.0%	4.9	0.7	5.8	4.91	8.73	1	2
WW1	0.42	0.54	0.25	100	2	12.6	400	2.0%	4.9	1.3	14.0	3.57	6.35	2	3
WW2	4.48	5.76	0.25	200	4	17.9	1300	2.5%	5.5	3.9	21.8	2.88	5.13	13	30
WW3	1.82	2.34	0.25	200	4	17.9	1300	2.5%	5.5	3.9	21.8	2.88	5.13	5	12
XX1	4.01	5.15	0.25	200	4	17.9	1500	2.5%	5.5	4.5	22.4	2.84	5.05	11	26
XX2	2.00	2.57	0.25	80	1.6	11.3	1200	2.5%	5.5	3.6	14.9	3.47	6.17	7	16
YY	0.65	0.83	0.25	300	15	16.2					16.2	3.34	5.94	2	5
ZZ	2.10	2.80	0.25	300	4	25.0					25.0	2.68	4.76	6	13
AAA	2.69	3.58	0.25	1000	32	34.2					34.2	2.24	3.99	6	14

JOB NAME: *PAINT BRUSH HILLS - PHASE 2 (FILING NO. 13)*
JOB NUMBER: *2053.21*
DATE: *06/10/08*
CALCULATED BY: *MAW*

FINAL DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY

Design Point(s)	Contributing Basins	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		Inlet Size
					I(5)	I(100)	Q(5)	Q(100)	
34C	DP-34B, V1, PR-6, PR-21	83.05	101.53	43.1	1.9	3.3	154	337	Exist. Dual 42"
34D	PR-55, YY, ZZ	40.70	53.16	34.7	2.2	4.0	91	210	Exist. Pond
35	OS-2, QQ1	9.43	12.57	23.3	2.8	5.0	26	62	36" RCP
36	QQ2	0.18	0.23	13.1	3.7	6.5	1	2	4' TYPE R
37	QQ3	1.67	2.20	17.2	3.3	5.8	5	13	4' TYPE R
38	TT1	0.37	0.47	14.0	3.6	6.4	1	3	4' TYPE R
39	OS-1, TT2	6.72	8.96	26.0	2.6	4.7	18	42	20' TYPE R
40	UU3	0.96	1.24	12.5	3.7	6.7	4	8	4' TYPE R
41	UU1, UU2	4.78	6.14	21.2	2.9	5.2	14	32	14' TYPE R
42	WW3	1.82	2.34	21.8	2.9	5.1	5	12	4' TYPE R
43	WW1, WW2	4.90	6.30	21.8	2.9	5.1	14	32	14' TYPE R
44	VV1	1.70	2.18	15.6	3.4	6.0	6	13	14' TYPE R
45	XX2	2.00	2.57	14.9	3.5	6.2	7	16	6' TYPE R
46	XX1	4.01	5.15	22.4	2.8	5.1	11	26	10' TYPE R

JOB NAME: *PAINT BRUSH HILLS - PHASE 2 (FILING NO. 13)*
JOB NUMBER: *2053.21*
DATE: *06/10/08*
CALCULATED BY: *MAW*

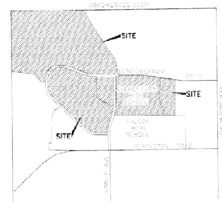
* PIPES ARE LISTED AT MAXIMUM SIZE REQUIRED TO ACCOMMODATE Q100 FLOWS AT MINIMUM GRADE. REFER TO INDIVIDUAL PIPE SHEETS FOR HYDRAULIC INFORMATION.

FINAL DRAINAGE REPORT ~ PIPE ROUTING SUMMARY

Pipe Run	Contributing Basins	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		Pipe Size*	
					I(5)	I(100)	Q(5)	Q(100)		
45	DP-41	4.78	6.14	21.2	2.93	5.20	14	32	30"	
46	PR-44, PR-45	5.74	7.38	22.0	2.87	5.10	16	38	30"	
47	DP-44 Pickup	1.11	1.35	15.6	3.40	6.05	4	8	18"	
48	PR-46, PR-47	6.85	8.73	22.4	2.84	5.06	19	44	36"	
49	DP-42	1.82	2.34	22.0	2.87	5.10	5	12	24"	
50	DP-43	4.90	6.30	22.0	2.87	5.10	14	32	30"	
51	PR-43, PR-49, PR-50	25.09	33.07	30.7	2.39	4.25	60	141	54"	
52	PR-48, PR-51	31.94	41.80	31.2	2.37	4.21	76	176	54"	
53	DP-45	2.00	2.57	14.9	3.47	6.17	7	16	24"	
54	DP-46	4.01	5.15	22.4	2.84	5.05	11	26	30"	
55	PR-52, PR-53, PR-54	37.95	49.53	32.7	2.30	4.10	87	203	54"	> 1%
56	1/2 DP34B	35.77	43.81	40.1	2.04	3.63	73	159	48"	> 1%
57	1/2 DP34B	35.77	43.81	40.1	2.04	3.63	73	159	48"	> 1%

LEGEND

DESCRIPTION	SYMBOL
EXISTING GROUND CONTOUR	6910
PROPOSED FINISHED CONTOUR	6910
BASIN BOUNDARY	
DESIGN POINT	(3)
BASIN IDENTIFIER / AREA IN ACRES	BB / 10.0
EXISTING DIRECTION OF FLOW	
PROPOSED DIRECTION OF FLOW	
PROPOSED STORM SEWER	
PROPOSED STORM SEWER INLETS	
STORM PIPE RUN SIZING	(20)
TIME OF CONCENTRATION	



VICINITY MAP

N.T.S.

NOTE: ALL PIPES BASED ON 100 YR. FLOWS AT 1.0% MIN. GRADE)

PIPE RUN	SIZE	PIPE RUN	SIZE	PIPE RUN	SIZE	PIPE RUN	SIZE
1	30" RCP	17	24" RCP	27	36" RCP	42	36" RCP
2	30" RCP	18	18" RCP	28	30" RCP	43	42" RCP
3 3A	30" RCP	19	24" RCP	29	30" RCP	44	18" RCP
4	30" RCP	20	30" RCP	30	36" RCP	45	30" RCP
5	24" RCP	21	30" RCP	31	24" RCP	46	30" RCP
6	30" RCP	22	18" RCP	32	18" RCP	47	18" RCP
7	EXIST. 24" RCP	23	18" RCP	33	30" RCP	48	36" RCP
8	36" RCP	24	18" RCP	34	36" RCP	49	24" RCP
9	30" RCP	24A	18" RCP	35	24" RCP	50	30" RCP
10	18" RCP	24B	24" RCP	36	30" RCP	51	54" RCP
11	30" RCP	24C	36" RCP	37	36" RCP	52	54" RCP
12	36" RCP	24D	36" RCP	38	18" RCP	53	24" RCP
13	18" RCP	24E	30" RCP	39	24" RCP	54	30" RCP
13A	42" RCP	24F	48" RCP	39A	42" RCP	55	54" RCP
14	30" RCP	25	18" RCP	40	42" RCP	56	48" RCP
15	24" RCP	26	30" RCP	41	18" RCP	57	48" RCP
16	42" RCP	26A	30" RCP	41A	42" RCP		

DESIGN POINT	FLOW	INLET SIZE
1	Q5 = 9 CFS Q100 = 20 CFS	8' TYPE R SUMP INLET
2	Q5 = 12 CFS Q100 = 26 CFS	12' TYPE R SUMP INLET
3	Q5 = 2 CFS Q100 = 5 CFS	4' TYPE R SUMP INLET
4	Q5 = 13 CFS Q100 = 27 CFS	12' TYPE R SUMP INLET
5	Q5 = 2 CFS Q100 = 5 CFS	18" CONC. CHASE SECTION
6	Q5 = 19 CFS Q100 = 38 CFS	EXIST. 14' TYPE R AT-GRADE INLET
7	Q5 = 15 CFS Q100 = 37 CFS	EXIST 18' TYPE R SUMP INLET
8	Q5 = 6 CFS Q100 = 12 CFS	4' TYPE R SUMP INLET
9	Q5 = 7 CFS Q100 = 14 CFS	8' TYPE R SUMP INLET
10	Q5 = 11 CFS Q100 = 21 CFS	EXIST 24" RCP STORM
11	Q5 = 23 CFS Q100 = 45 CFS	36" RCP STORM
12	Q5 = 2 CFS Q100 = 5 CFS	4' TYPE R SUMP INLET
13	Q5 = 13 CFS Q100 = 27 CFS	12' TYPE R SUMP INLET
14	Q5 = 12 CFS Q100 = 28 CFS	12' TYPE R SUMP INLET
14A	Q5 = 8 CFS Q100 = 17 CFS	12' TYPE R AT-GRADE INLET
15	Q5 = 8 CFS Q100 = 17 CFS	8' TYPE R SUMP INLET
16	Q5 = 6 CFS Q100 = 12 CFS	4' TYPE R SUMP INLET
17	Q5 = 2 CFS Q100 = 3 CFS	4' TYPE R SUMP INLET
18	Q5 = 12 CFS Q100 = 26 CFS	12' TYPE R SUMP INLET
19	Q5 = 8 CFS Q100 = 17 CFS	EXIST. 8' TYPE R SUMP INLET
20	Q5 = 19 CFS Q100 = 36 CFS	EXIST. 14 TYPE R AT-GRADE INLET
21	Q5 = 1 CFS Q100 = 3 CFS	4' TYPE R SUMP INLET
22	Q5 = 3 CFS Q100 = 7 CFS	4' TYPE R SUMP INLET
23	Q5 = 3 CFS Q100 = 6 CFS	4' TYPE R SUMP INLET
23A	Q5 = 10 CFS Q100 = 22 CFS	EXIST. 10' TYPE R INLETS
23B	Q5 = 13 CFS Q100 = 28 CFS	EXIST. 15' TYPE R INLET
23C	Q5 = 5 CFS Q100 = 10 CFS	EXIST. 15' TYPE R INLET
23D	Q5 = 3 CFS Q100 = 5 CFS	EXIST. 15' TYPE R INLET
23E	Q5 = 2 CFS Q100 = 4 CFS	18" GRATED INLET
23F	Q5 = 2 CFS Q100 = 3 CFS	18" GRATED INLET
23G	Q5 = 35 CFS Q100 = 68 CFS	EXIST. 48" CMP / DUAL 36" CULVERT
24	Q5 = 10 CFS Q100 = 23 CFS	14' TYPE R AT-GRADE INLET
25	Q5 = 9 CFS Q100 = 23 CFS	8' TYPE R SUMP INLET
26	Q5 = 6 CFS Q100 = 12 CFS	4' TYPE R SUMP INLET
27	Q5 = 11 CFS Q100 = 25 CFS	10' TYPE R SUMP INLET
28	Q5 = 10 CFS Q100 = 22 CFS	10' TYPE R SUMP INLET
29	Q5 = 8 CFS Q100 = 17 CFS	6' TYPE R SUMP INLET
30	Q5 = 2 CFS Q100 = 4 CFS	4' TYPE R SUMP INLET
31	Q5 = 15 CFS Q100 = 32 CFS	EXIST 12' TYPE R
32	Q5 = 4 CFS Q100 = 7 CFS	EXIST. 6' TYPE R
33	Q5 = 6 CFS Q100 = 14 CFS	4' TYPE R SUMP INLET
34	Q5 = 7 CFS Q100 = 16 CFS	6' TYPE R SUMP INLET
34A	Q5 = 46 CFS Q100 = 106 CFS	EXIST. DUAL 36" RCP STORM
34B	Q5 = 139 CFS Q100 = 302 CFS	PROP. DUAL 48" RCP STORM
34C	Q5 = 154 CFS Q100 = 337 CFS	EXIST. DUAL 42" RCP STORM
34D	Q5 = 89 CFS Q100 = 207 CFS	EXIST. POND
35	Q5 = 26 CFS Q100 = 62 CFS	PROP. 36" RCP STORM
36	Q5 = 1 CFS Q100 = 2 CFS	4' TYPE R SUMP INLET
37	Q5 = 5 CFS Q100 = 13 CFS	4' TYPE R SUMP INLET
38	Q5 = 1 CFS Q100 = 3 CFS	4' TYPE R SUMP INLET
39	Q5 = 18 CFS Q100 = 42 CFS	20' TYPE R SUMP INLET
40	Q5 = 4 CFS Q100 = 8 CFS	4' TYPE R SUMP INLET
41	Q5 = 14 CFS Q100 = 32 CFS	14' TYPE R SUMP INLET
42	Q5 = 5 CFS Q100 = 12 CFS	4' TYPE R SUMP INLET
43	Q5 = 14 CFS Q100 = 32 CFS	14' TYPE R SUMP INLET
44	Q5 = 6 CFS Q100 = 13 CFS	14' TYPE R AT-GRADE INLET
45	Q5 = 7 CFS Q100 = 16 CFS	6' TYPE R SUMP INLET
46	Q5 = 11 CFS Q100 = 26 CFS	10' TYPE R SUMP INLET

NOTES:

THIS MAP IS FOR DRAINAGE PURPOSES ONLY. SEE GRADING PLAN FOR APPROPRIATE GRADING INFORMATION.

N

200 100 0 200 400

SCALE: 1" = 200'

FLOOD PLAIN STATEMENT:

NO PORTION OF THIS SITE IS LOCATED WITHIN A FEMA FLOODPLAIN AS DETERMINED BY THE FLOOD INSURANCE RATE MAPS (F.I.R.M.) MAP NUMBERS 08041C 0535F AND 08041C 0575, WITH EFFECTIVE DATES OF MARCH 17, 1997 (SEE APPENDIX).

48 HOURS BEFORE YOU DIG, CALL UTILITY LOCATORS

1-800-922-1987

CITY OF COLORADO SPRINGS DEPT. OF UTILITIES
GAS, ELECTRIC, WATER AND WASTEWATER

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NO.	REVISION	DATE
1	REVISED PER COUNTY COMMENTS	7/12/06
2	REVISED PER COUNTY / NEIGHBORHOOD COMMENTS	6/10/08

REVIEW:

PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

MARC A. WHORTON, COLORADO P.E. #37155 DATE

CLASSIC CONSULTING ENGINEERS & SURVEYORS
6385 Corporate Drive, Suite 101
Colorado Springs, Colorado 80919
(719)785-0790
(719)785-0799 (Fax)

PAINT BRUSH HILLS – PHASE 2
(FILING NO. 13)
FINAL DRAINAGE REPORT
PROPOSED CONDITIONS DRAINAGE MAP

DESIGNED BY	MAW	SCALE	6/10/08
DRAWN BY	MAW	(H) 1"= 200'	SHEET 2 OF 2
CHECKED BY		(V) 1"= N/A	JOB NO. 2053.21

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for El Paso County Area, Colorado

Sub-basin ZZ and XX2

April 26, 2021

Contents

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71—Pring coarse sandy loam, 3 to 8 percent slopes.....13
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Custom Soil Resource Report
Soil Map

Map Scale: 1:1,990 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 25 50 100 150

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 18, Jun 5, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 11, 2018—Oct 20, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
71	Pring coarse sandy loam, 3 to 8 percent slopes	8.9	100.0%
Totals for Area of Interest		**8.9**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

El Paso County Area, Colorado

71—Pring coarse sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 369k
Elevation: 6,800 to 7,600 feet
Farmland classification: Not prime farmland

Map Unit Composition

Pring and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pring

Setting

Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Arkosic alluvium derived from sedimentary rock

Typical profile

A - 0 to 14 inches: coarse sandy loam
C - 14 to 60 inches: gravelly sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: R048AY222CO
Hydric soil rating: No

Minor Components

Pleasant

Percent of map unit:
Landform: Depressions
Hydric soil rating: Yes

Other soils

Percent of map unit:
Hydric soil rating: No

EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP)
EL PASO COUNTY APPLICATION AND PERMIT

EPC Project Number: PPR-2318

APPLICANT INFORMATION ***PERMIT NUMBER*** _____

Owner Information	
Property Owner	Paint Brush Hills Metropolitan District
Applicant Name (Permit Holder)	Robert Guevara
Company/Agency	Paint Brush Hills Metropolitan District
Position of Applicant	District Manager
Address (physical address, not PO Box)	9985 Towner Avenue
City	Peyton
State	Colorado
Zip Code	80831
Mailing address, if different from above	
Telephone	719-495-8188
FAX number	
Email Address	robert@pbhmd.com
Cellular Phone number	
Contractor/Operator Information	
Name (person of responsibility)	TBD after a contractor is awarded
Company	
Address (physical address, not PO Box)	
City	
State	
Zip Code	
Mailing address, if different from above	
Telephone	
FAX number	
Email Address	
Cellular Phone number	
Erosion Control Supervisor (ECS)*	To be provided by contractor
ECS Phone number*	To be provided by contractor
ECS Cellular Phone number*	To be provided by contractor

*Required for all applicants. May be provided at later date pending securing a contract when applicable.

PROJECT INFORMATION

Project Information	
Project Name	PBHMD Pump House #6
Legal Description	TRACT A, PAINT BRUSH HILLS FILING NO. 12 TRACT B, PAINT BRUSH HILLS FILING NO. 14
Address (or nearest major cross streets)	10102 KEYNES DR, Peyton, Colorado 80831
Acreage (total and disturbed)	Total: 3.777 acres Disturbed: 0.64 acres
Schedule	Start of Construction: Summer 2023 Completion of Construction: Fall 2023 Final Stabilization: Fall 2023
Project Purpose	The purpose of the proposed pump house is to accommodate and protect the District's existing utility controls infrastructure.
Description of Project	Pump House No. 6 will enclose existing electrical equipment for existing wells #10, 11, and 12 including VFDs and pump control panels. Other improvements include a driveway, landscaping, and three parking spaces.
Tax Schedule Number	#5226101006 and #5226101057

FOR OFFICE USE ONLY
The following signature from the ECM Administrator signifies the approval of this ESQCP. All work shall be performed in accordance with the permit, the El Paso County Engineering Criteria Manual (ECM) Standards, City of Colorado Springs Drainage Criteria Manual, Volume 2 (DCM2) as adopted by El Paso County Addendum, approved plans, and any attached conditions. The approved plans are an enforceable part of the ESQCP. Construction activity, except for the installation of initial construction BMPs, is not permitted until issuance of a Construction Permit and Notice to Proceed.

Signature of ECM Administrator: **Approved**
By: Gilbert LaForce, P.E.
Engineering Manager
Date: 09/28/2023 9:18:52 AM
El Paso County Department of Public Works

Date _____

1.1 REQUIRED SUBMISSIONS

In addition to this completed and signed application, the following items must be submitted to obtain an ESQCP:

- Permit fees;
- Stormwater Management Plan (SWMP) meeting the requirements of DCM2 and ECM either as part of the plan set or as a separate document;
- Operation and Maintenance Plan for any proposed permanent stormwater control measures; and
- Signed Private Detention Basin/Stormwater Quality Best Management Practice Maintenance Agreement and Easement, if any permanent stormwater control measures are to be constructed.

1.2 RESPONSIBILITY FOR DAMAGE

The County and its officers and employees, including but not limited to the ECM Administrator, shall not be answerable or accountable in any manner for damage to property or for injury to or death of any person, including but not limited to a permit holder, persons employed by the permit holder, or persons acting in behalf of the permit holder, from any cause. The permit holder shall be responsible for any liability imposed by law and for damage to property or injuries to or death of any person, including but not limited to the permit holder, persons employed by the permit holder, persons acting in behalf of the permit holder, arising out of work or other activity permitted and done under a permit, or arising out of the failure to perform the obligations under any permit with respect to maintenance or any other obligations, or resulting from defects or obstructions, or from any cause whatsoever during the progress of the work or other activity, or at any subsequent time work or other activity is being performed under the obligations provided by and contemplated by the permit.

The permit holder shall indemnify, save, and hold harmless the County and its officers and employees, including but not limited to the BOCC and ECM Administrator, from all claims, suits or actions of every name, kind and description brought for or on account of damage to property or injuries to or death of any person, including but not limited to the permit holder, persons employed by the permit holder, persons acting in behalf of the permit holder and the public, resulting from the performance of work or other activity under the permit, or arising out of the failure to perform obligations under any permit with respect to maintenance or any other obligations, or resulting from defects or obstructions, or from any cause whatsoever during the progress of the work or other activity, or at any subsequent time work or other activity is being performed under the obligations provided by and contemplated by the permit, except as otherwise provided by state law. The permit holder waives any and all rights to any type of expressed or implied indemnity against the County, its officers or employees. It is the intent of the parties that the permit holder will indemnify, save, and hold harmless the County, its officers and employees from any and all claims, suits or actions as set forth above regardless of the existence or degree of fault of or negligence, whether active or passive, primary or secondary, on the part of the County, the permit holder, persons employed by the permit holder, or persons acting in behalf of the permit holder

1.3 APPLICATION CERTIFICATION

We, as the Applicants or the representative of the Applicants, hereby certify that this application is correct and complete as per the requirements presented in this application, the El Paso County Engineering Criteria Manual, and Drainage Criteria Manual, Volume 2 and El Paso County Addendum.

We, as the Applicants or the representatives of the Applicants, have read and will comply with all of the requirements of the specified Stormwater Management Plan and any other documents specifying stormwater best management practices to be used on the site, including permit conditions that may be required by the ECM Administrator. We understand that the stormwater control measures are to be maintained on the site and revised as necessary to protect stormwater quality as the project progresses. We further understand that a Construction Permit must be obtained and all necessary stormwater quality control measures are to be installed in accordance with the SWMP, the El Paso County Engineering Criteria Manual, Drainage Criteria Manual, Volume 2 and El Paso County Addendum before land disturbance begins and that failure to comply will result in a Stop Work Order and may result in other penalties as allowed by law. We further understand and agree to indemnify, save, and hold harmless the County and its officers and employees, including but not limited to the BOCC and ECM Administrator, from all claims, suits or actions of every name, kind and description as outlined in Section 1.2 Responsibility for Damage

Robert Guevara _____ Date: 7/7/23

Signature of Owner or Representative

Robert Guevara

Print Name of Owner or Representative

_____ Date: _____

Signature of Operator or Representative

_____

Print Name of Operator or Representative

Permit Fee $_____

Surcharge $_____

Financial Surety $_____ Type of Surety _____

Total $_____