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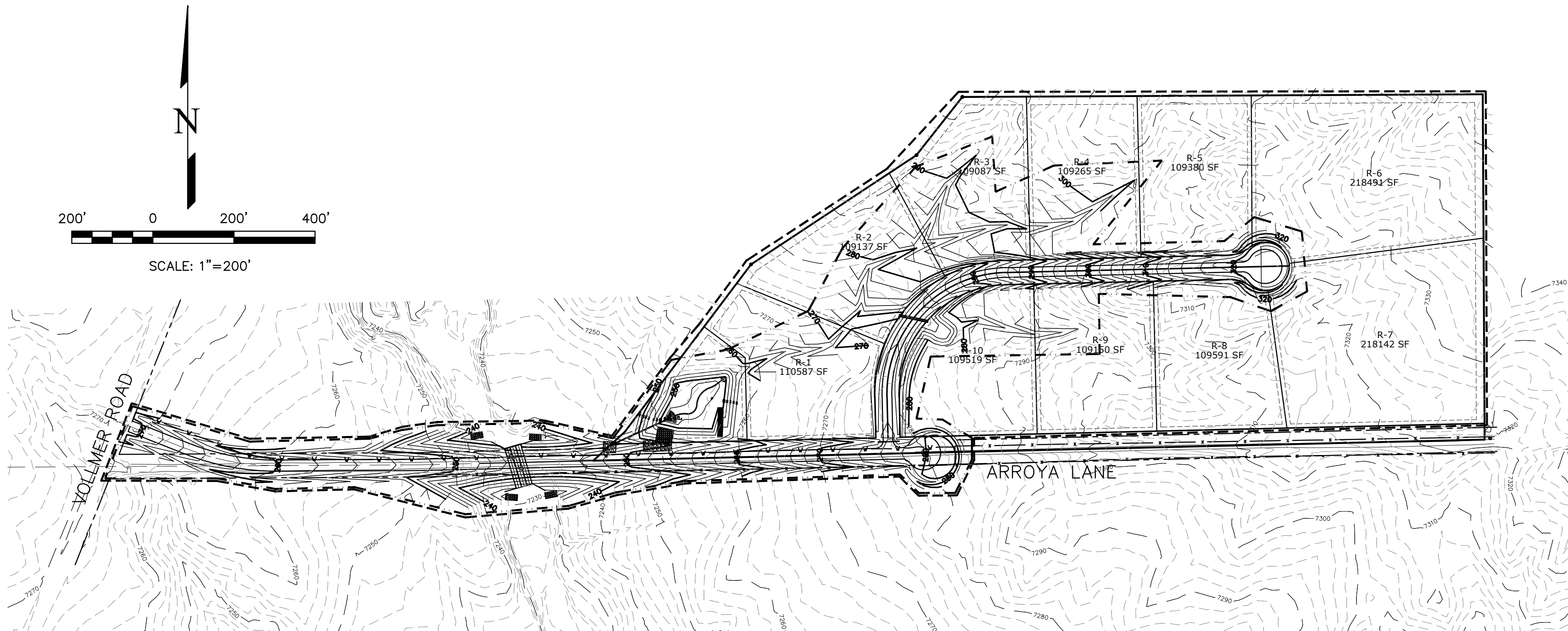


TIMBERRIDGE ESTATES - 9210 ARROYA LANE

EL PASO COUNTY

GRADING & EROSION CONTROL PLAN

AUGUST 2018



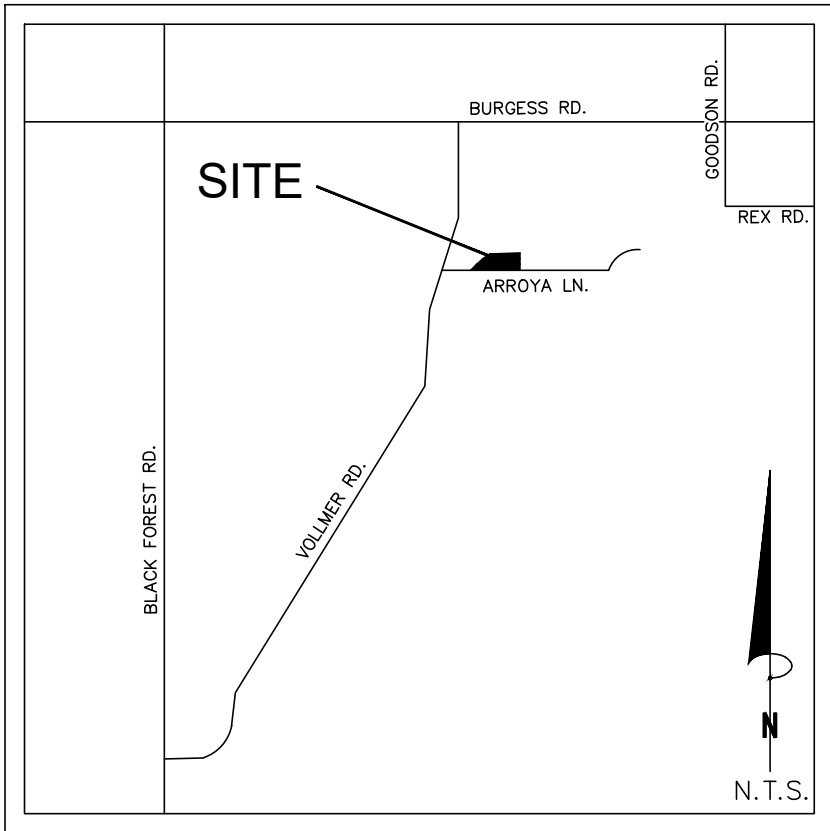
EROSION CONTROL COST OPINION:

1. 2,270 LF-SILT FENCE @ \$4.00/LF	\$	9,080
2. 5,725 LF-SEDIMENT CONTROL LOGS \$4.00/LF	\$	22,900
3. 2 EA-VEHICLE TRACKING CONTROL @ \$1,325/ENTRANCE	\$	2,650
4. 14.2 AC-HYDROSEED @ \$1,000/AC	\$	14,200
5. 5,150 SY-EROSION CONTROL BLANKET @ \$8.00/SY	\$	41,200
6. 1 EA-CONCRETE WASHOUT @ \$760/EA	\$	760
7. 40% MAINTENANCE AND REPLACEMENT	\$	36,316
TOTAL	\$	127,106

STILL NEED

1. ANY ADDITIONAL EASEMENTS ??? – FOR ROAD REALIGNMENT, ELEC/GAS, ETC.

VICINITY MAP



SHEET INDEX:

- 1 COVER SHEET
- 2 NOTES SHEET
- 3 GRADING PLAN – EAST
- 4 GRADING PLAN – WEST
- 5 GRADING PLAN DETAILS
- 6 GRADING PLAN DETAILS
- 7 GRADING PLAN DETAILS
- 8 EROSION CONTROL PLAN
- 9 EROSION CONTROL DETAILS
- 10 EROSION CONTROL DETAILS

CONTACT INFORMATION:

OWNER:	TIMBERRIDGE ESTATES, LLC 2760 BROGANS BLUFF COLORADO SPRINGS, COLORADO 80819 (719) 499-6752
CIVIL ENGINEER:	TERRA NOVA ENGINEERING, INC. 721 S. 23RD STREET COLORADO SPRINGS, COLORADO 80904 QUENTIN N. ARMIJO, P.E., (719) 635-6422
EL PASO COUNTY	PLANNING AND COMMUNITY DEVELOPMENT 2880 INTERNATIONAL CIRCLE COLORADO SPRINGS, COLORADO 80910 (719) 520-6300

SOIL TYPES

ONSITE SOILS ARE HYDROLOGIC GROUP "B", KETTLE GRAVELLY LOAMY SAND (40), 3 TO 8 PERCENT SLOPES, KETTLE GRAVELLY LOAMY SAND (41), 8 TO 40 PERCENT SLOPES AND PRING COARSE SANDY LOAM (71)

BENCHMARKS

A #4 REBAR 28.3 FEET SOUTH AND 77.2 FEET WEST OF THE SOUTHEAST PROPERTY CORNER.
ELEV = 7,319.85' (NGVD-1929)

BASIS OF BEARING

THE EAST LINE OF THE SOUTHWEST QUARTER OF SECTION 22, TOWNSHIP 12 SOUTH, RANGE 65 WEST AND IS ASSUMED TO BEAR NORTH 0 DEGREES 18 MINUTES 04 SECONDS EAST 2640.26 FEET.

EL PASO COUNTY APPROVAL

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, AND ENGINEERING CRITERIA MANUAL AS AMENDED.

COUNTY ENGINEER / DIRECTOR _____ DATE _____
CONDITIONS:

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 REPORT.

DUCETT, P.E. #32339
FOR AND ON BEHALF OF TERRA NOVA ENGINEERING, INC.

OWNER'S STATEMENT

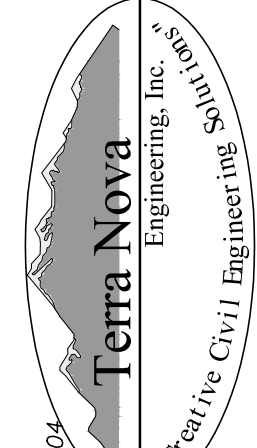
THE OWNER WILL COMPLY WITH THE REQUIREMENTS OF THE GRADING AND EROSION CONTROL PLAN.

OWNER NAME: _____ DATE: _____

SIGNED BY: _____

TITLE: _____

ADDRESS: _____

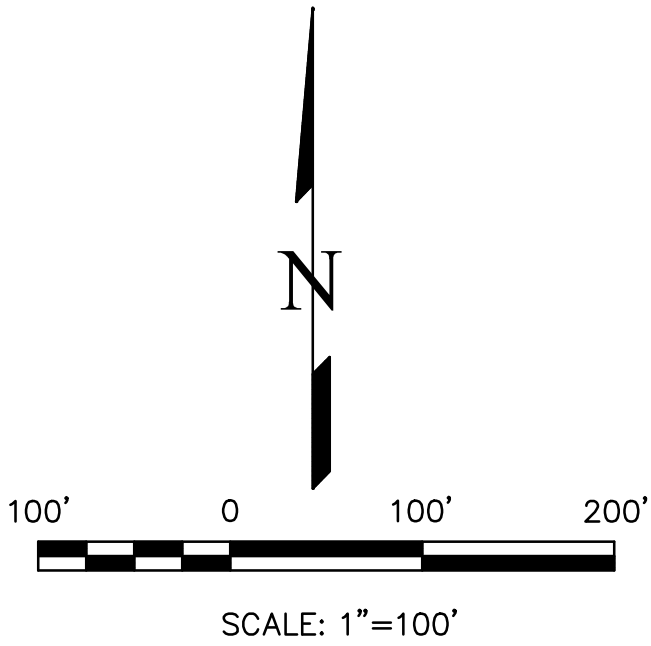
REVISIONS	NO.	DESCRIPTION	DATE
UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE EL PASO COUNTY ENGINEER, TERRA NOVA ENGINEERING, INC. APPROVES THEIR USE ONLY FOR THE PROJECT DESIGNATED BY WRITTEN AUTHORIZATION.			
PREPARED FOR:	TIMBERRIDGE ESTATES, LLC		
ATTN:	2760 BROGANS BLUFF		
	COLORADO SPRINGS, CO 80919		
			
721 S. 23RD STREET COLORADO SPRINGS, CO 80904 OFFICE: 719-635-6422 FAX: 719-635-6426 www.tneng.com			
DESIGNED BY LD			
DRAWN BY DLF			
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H-SCALE AS SHOWN			
V-SCALE NA			
JOB NO. 1733.00			
DATE ISSUED 08/13/18			
SHEET NO. 1 OF 10			

TIMBERRIDGE ESTATES - 9210 ARROYA LANE
EL PASO COUNTY
GRADING & EROSION CONTROL PLAN
AUGUST 2018

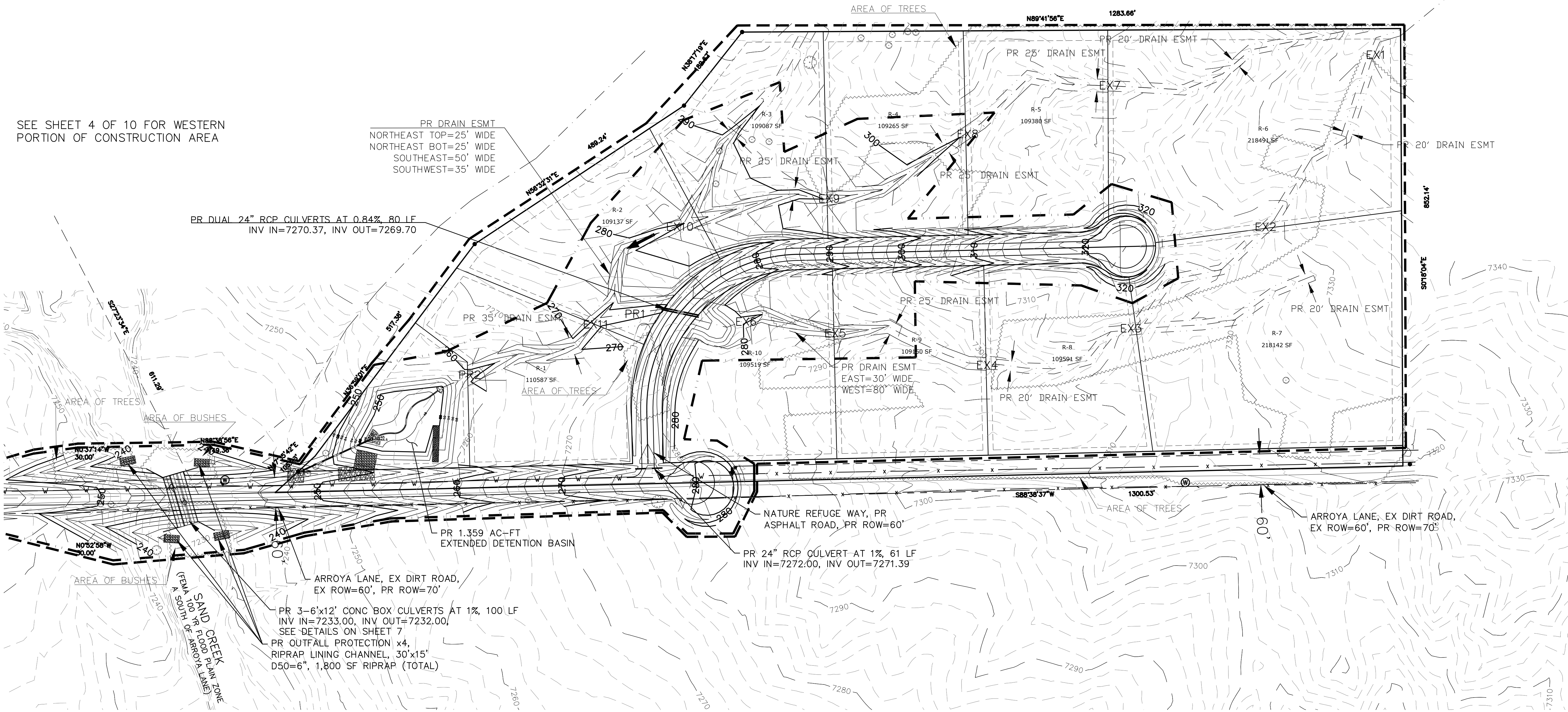
BENCHMARKS
A #4 REBAR 28.3 FEET SOUTH AND 77.2 FEET WEST OF THE SOUTHEAST
PROPERTY CORNER.
ELEV = 7,319.85' (NGVD-1929)

LEGEND

- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR
- PROPOSED 2' CONTOUR
- PROPOSED 10' CONTOUR
- SURFACE FLOW CHANNEL
- PROPOSED DRAINAGE EASEMENT
- EXISTING WATER LINE
- CONSTRUCTION SITE BOUNDARY
- AREA OF SOIL DISTURBANCE
- EXISTING TREE
- OPEN CHANNEL FLOW CALC POINT
- AREA OF TREES/BRUSH LIMIT



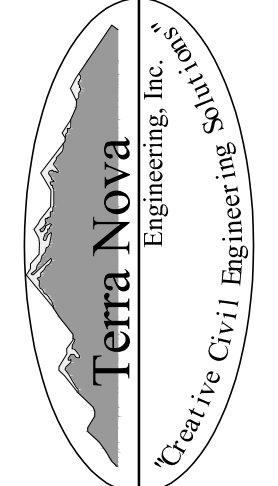
SEE SHEET 4 OF 10 FOR WESTERN
PORTION OF CONSTRUCTION AREA



REVISIONS		DESCRIPTION	DATE
NO.			

UNTIL SUCH TIME AS THESE
DRAWINGS ARE APPROVED
FOR CONSTRUCTION BY
THE EL PASO COUNTY
ENGINEERING DEPARTMENT
TERRA NOVA ENGINEERING,
INC. APPROVES THEIR USE
ONLY FOR THE PROJECT
AND SITE SPECIFICALLY
IDENTIFIED BY
WRITTEN AUTHORIZATION.

PREPARED FOR:
TIMBERRIDGE ESTATES, LLC
ATTN:
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COLORADO SPRINGS, CO 80919



Terra Nova
Engineering, Inc.
Creative Civil Engineering

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COLORADO SPRINGS, CO 80904
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www.tnainc.com

TIMBERRIDGE ESTATES
9210 ARROYA LANE

GRADING & EROSION CONTROL PLAN
GRADING PLAN - EAST

DESIGNED BY LD
DRAWN BY DLF
CHECKED BY LD
H-SCALE 1"=100'
V-SCALE NA
JOB NO. 1733.00
DATE ISSUED 08/13/18
SHEET NO. 3 OF 10

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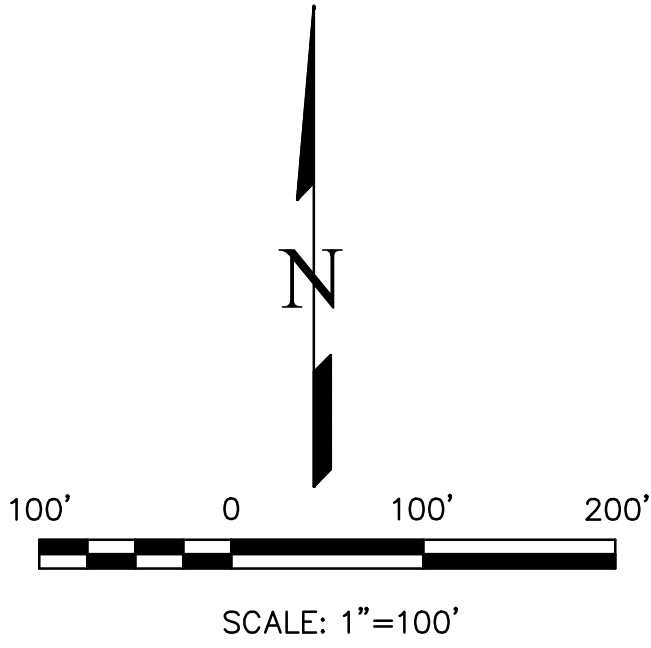
BENCHMARKS
A #4 REBAR 28.3 FEET SOUTH AND 77.2 FEET WEST OF THE SOUTHEAST
PROPERTY CORNER.
ELEV = 7,319.85' (NGVD-1929)

TIMBERRIDGE ESTATES - 9210 ARROYA LANE

EL PASO COUNTY

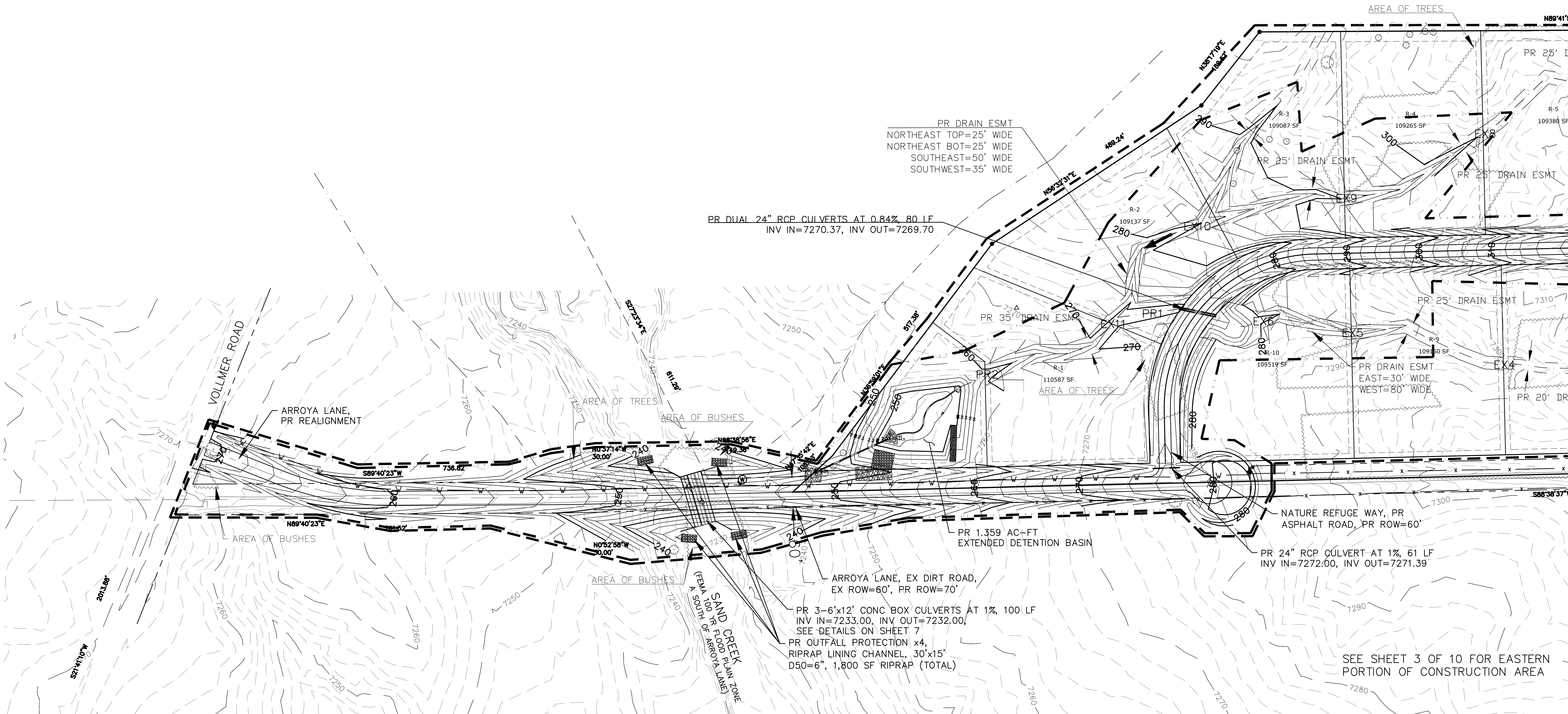
GRADING & EROSION CONTROL PLAN

AUGUST 2018



LEGEND

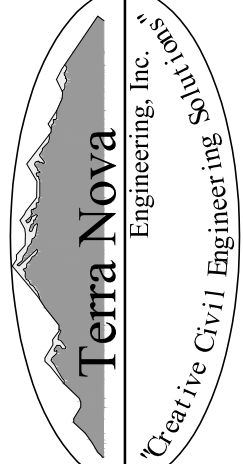
- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR
- PROPOSED 2' CONTOUR
- PROPOSED 10' CONTOUR
- SURFACE FLOW CHANNEL
- PROPOSED DRAINAGE EASEMENT
- EXISTING WATER LINE
- CONSTRUCTION SITE BOUNDARY
- AREA OF SOIL DISTURBANCE
- EXISTING TREE
- OPEN CHANNEL FLOW CALC POINT
- AREA OF TREES/BRUSH LIMIT



REVISIONS	
NO.	DESCRIPTION

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PREPARED FOR:
TIMBERRIDGE ESTATES, LLC
ATTN:
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COLORADO SPRINGS, CO 80919


Terra Nova
Engineering, Inc.
Creative Civil Engineering

721 S. 2900 STREET
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www.tnrainc.com

TIMBERRIDGE ESTATES
9210 ARROYA LANE
GRADING & EROSION CONTROL PLAN
GRADING PLAN - WEST

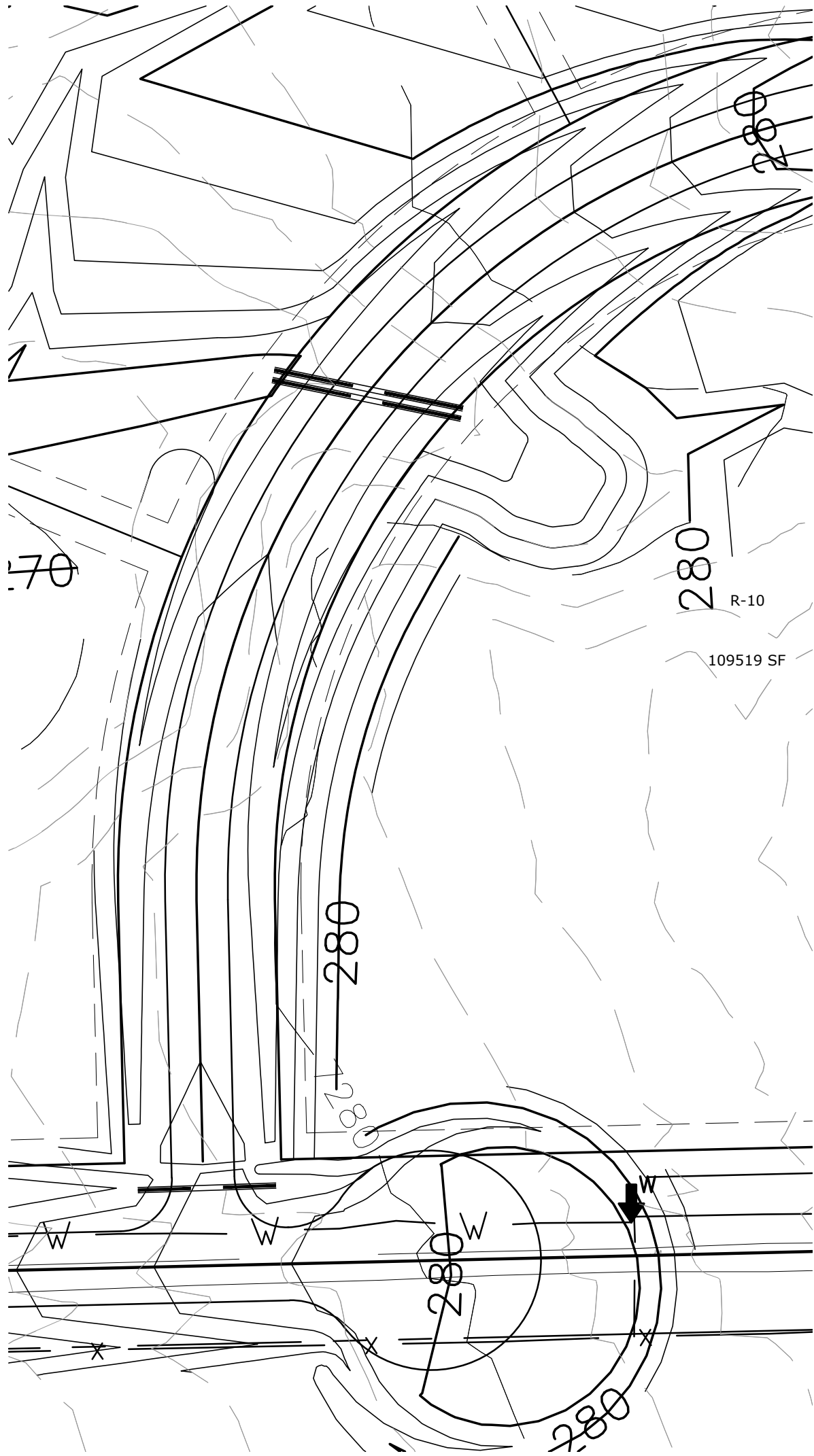
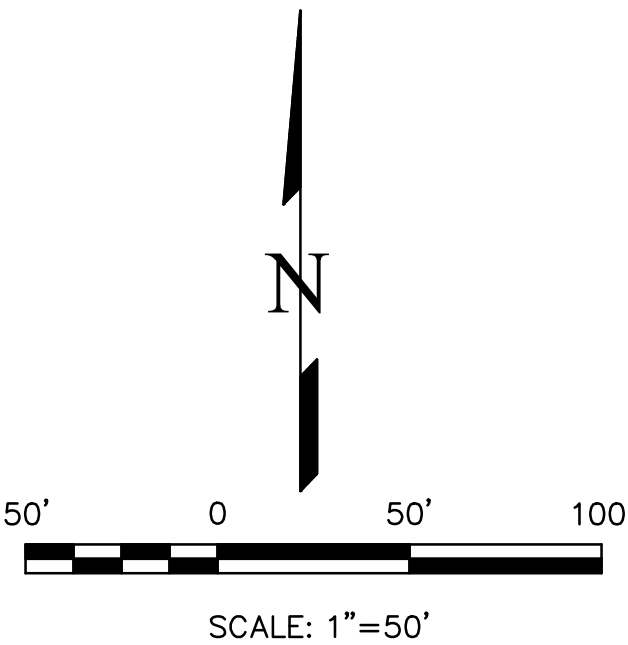
DESIGNED BY LD
DRAWN BY DLF
CHECKED BY LD
H-SCALE 1"=100'
V-SCALE NA
JOB NO. 1733.00
DATE ISSUED 08/13/18
SHEET NO. 4 OF 10

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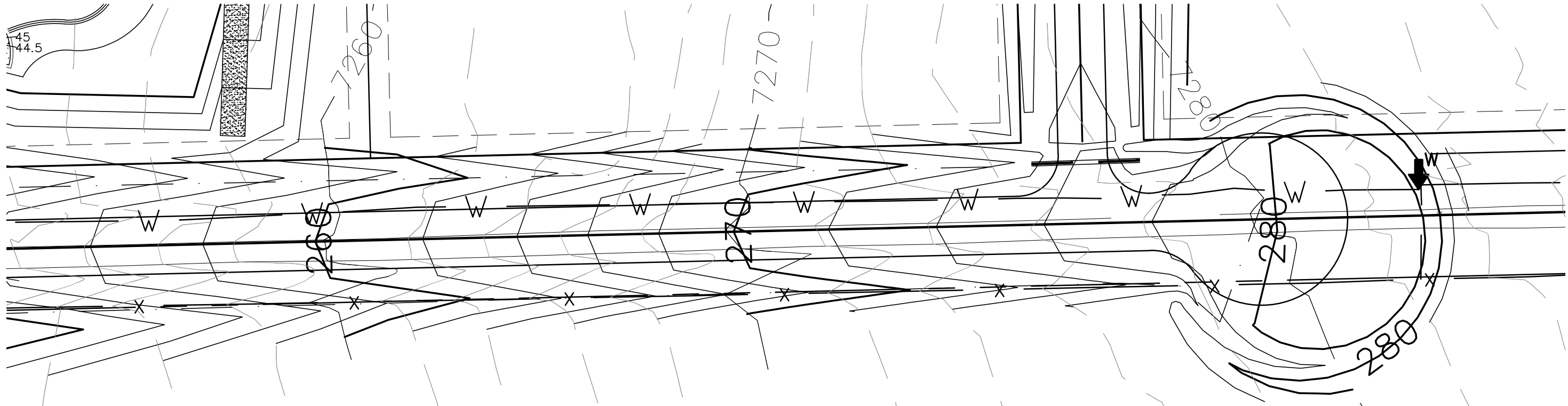
BENCHMARKS
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ELEV = 7,319.85' (NGVD-1929)

TIMBERRIDGE ESTATES - 9210 ARROYA LANE
EL PASO COUNTY
GRADING & EROSION CONTROL PLAN
AUGUST 2018

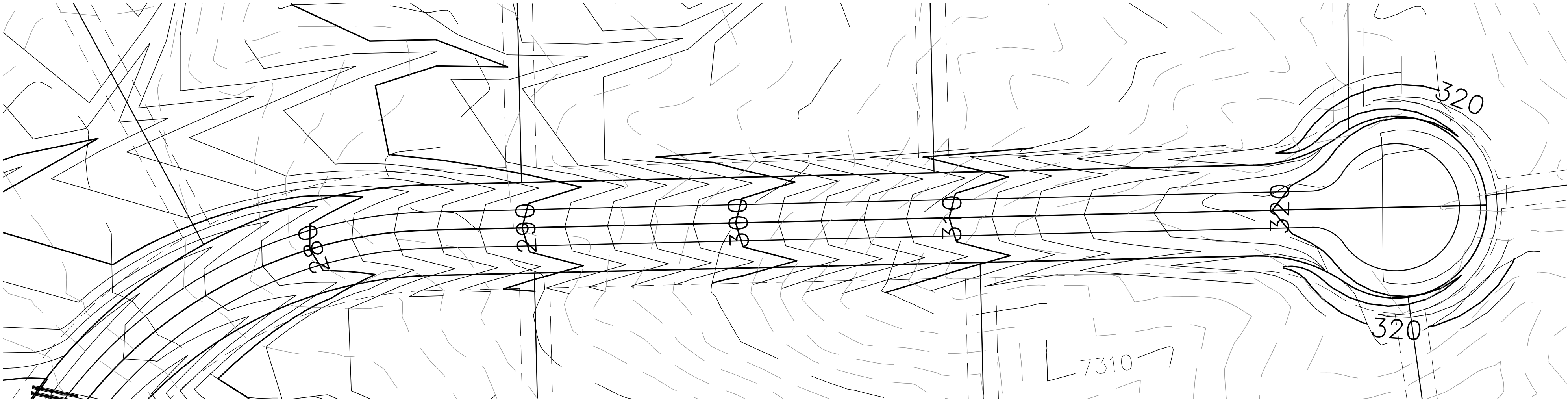
- LEGEND**
- EXISTING 2' CONTOUR
 - EXISTING 10' CONTOUR
 - PROPOSED 2' CONTOUR
 - PROPOSED 10' CONTOUR
 - SURFACE FLOW CHANNEL
 - PROPOSED DRAINAGE EASEMENT
 - EXISTING WATER LINE
 - CONSTRUCTION SITE BOUNDARY
 - AREA OF SOIL DISTURBANCE
 - EXISTING TREE



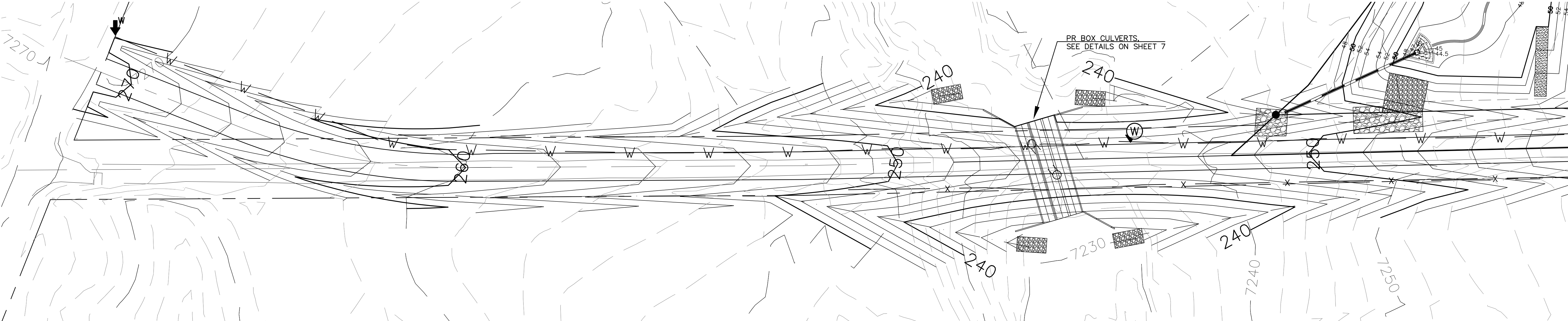
SOUTH PORTION NATURE REFUGE WAY DETAIL



EAST PORTION ARROYA LANE DETAIL



NORTH PORTION NATURE REFUGE WAY DETAIL



WEST PORTION ARROYA LANE DETAIL

REVISIONS	
NO.	DESCRIPTION

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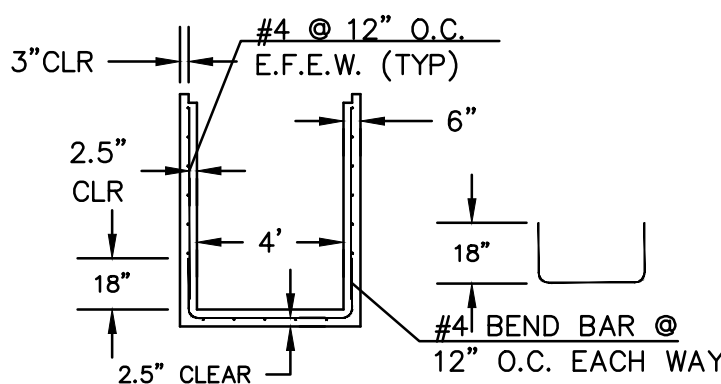
TIMBERRIDGE ESTATES
9210 ARROYA LANE
GRADING & EROSION CONTROL PLAN
GRADING PLAN - DETAILS

DESIGNED BY LD
DRAWN BY DLF
CHECKED BY LD
H-SCALE 1"=50'
V-SCALE NA
JOB NO. 1733.00
DATE ISSUED 08/13/18
SHEET NO. 5 OF 10

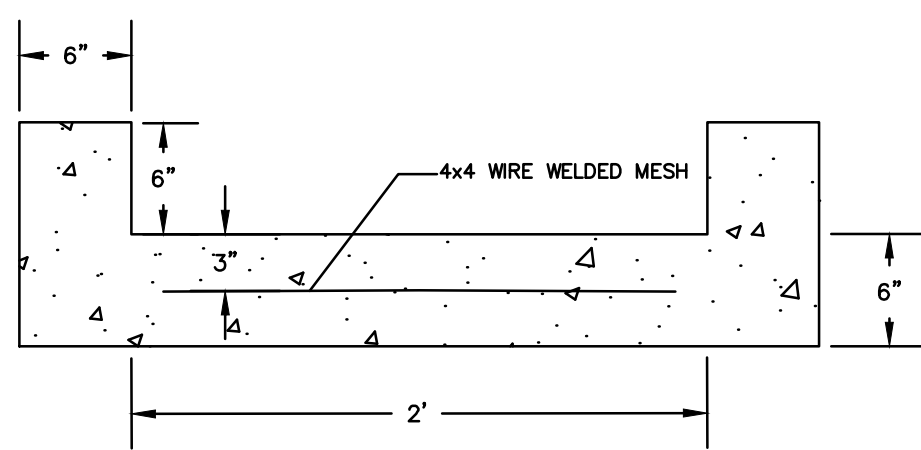
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LEGEND

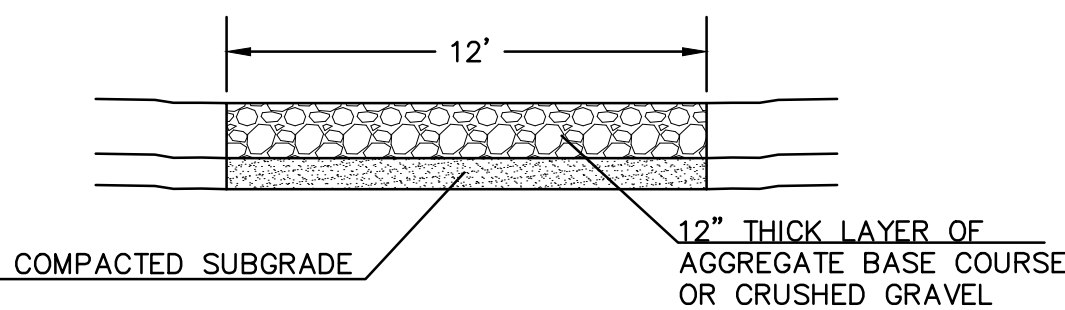
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- 7260 EXISTING 10' CONTOUR
- PROPOSED 2' CONTOUR
- 260 PROPOSED 10' CONTOUR
- SURFACE FLOW CHANNEL
- PROPOSED DRAINAGE EASEMENT
- EXISTING WATER LINE
- CONSTRUCTION SITE BOUNDARY
- AREA OF SOIL DISTURBANCE
- EXISTING TREE



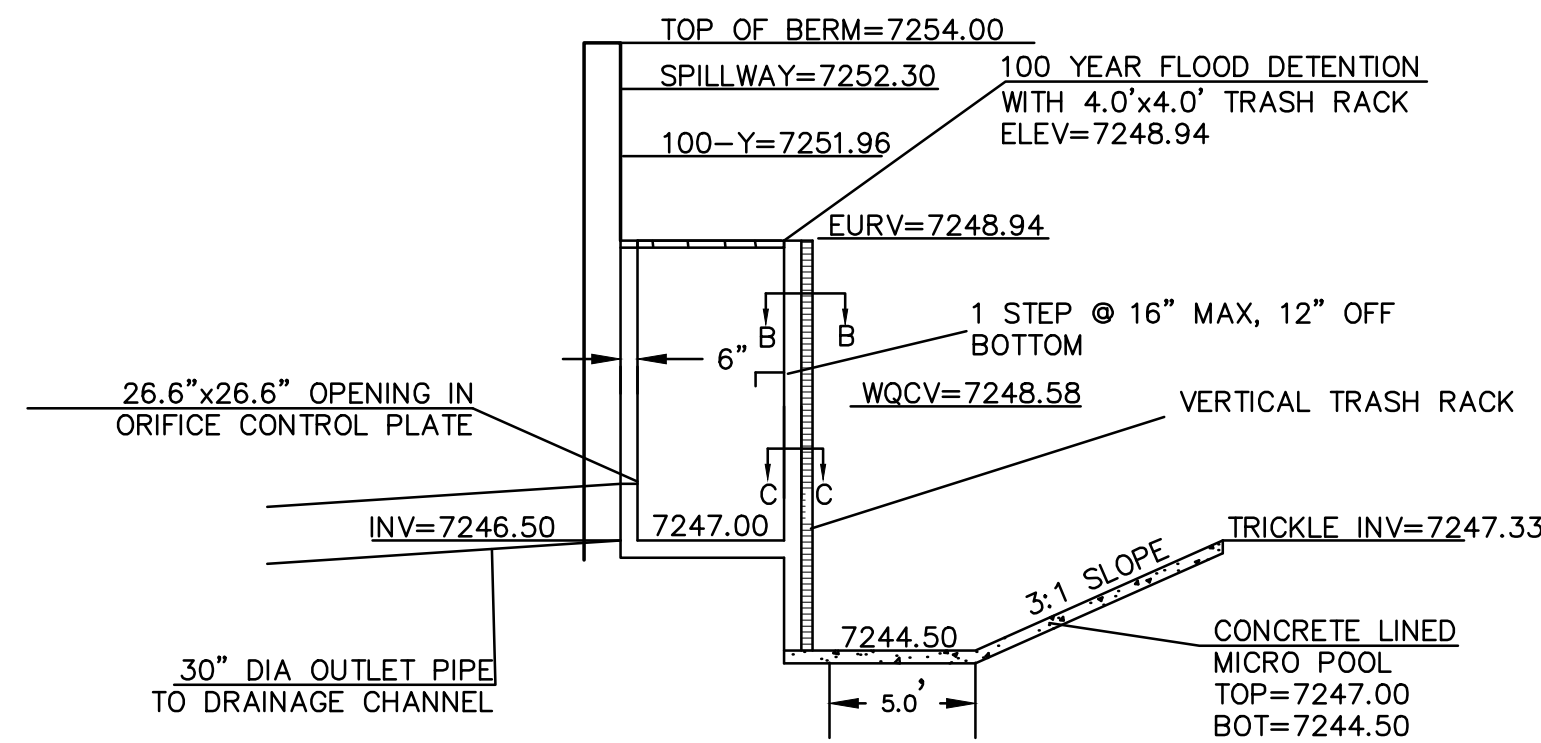
**4'x4' OUTLET BOX
STRUCTURAL DETAIL**
NOT TO SCALE



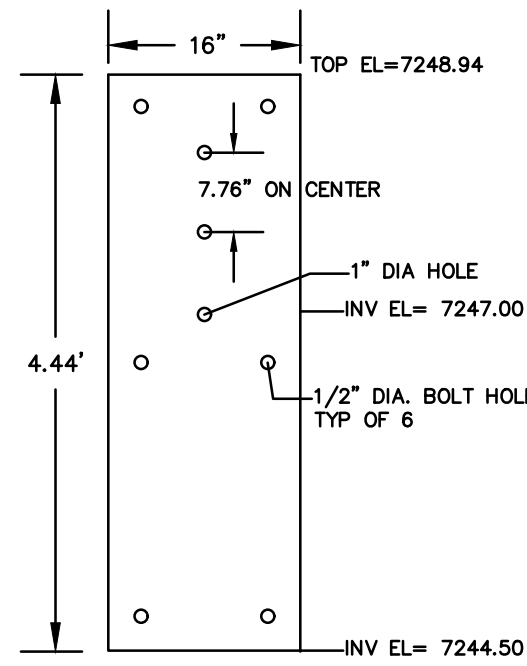
2' CONCRETE TRICKLE CHANNEL
NOT TO SCALE



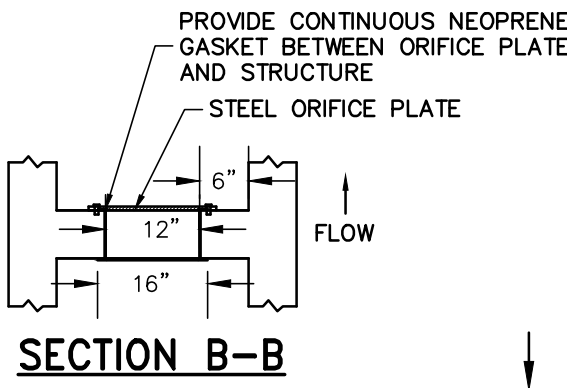
12' MAINTENANCE ACCESS ROAD SECTION
NOT TO SCALE



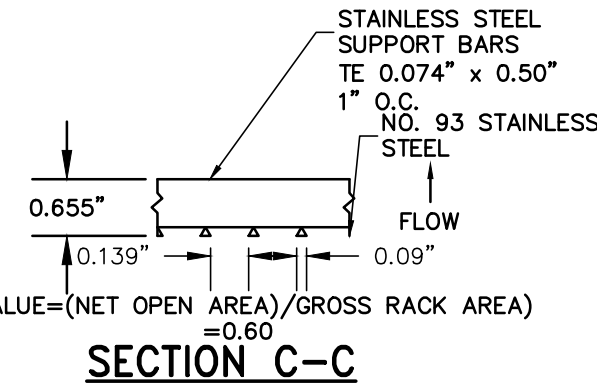
OUTLET STRUCTURE
NOT TO SCALE



**ORIFICE PLATE
PERFORATED HOLE PATTERN**
NOT TO SCALE



SECTION B-B
NOT TO SCALE



SECTION C-C
NOT TO SCALE

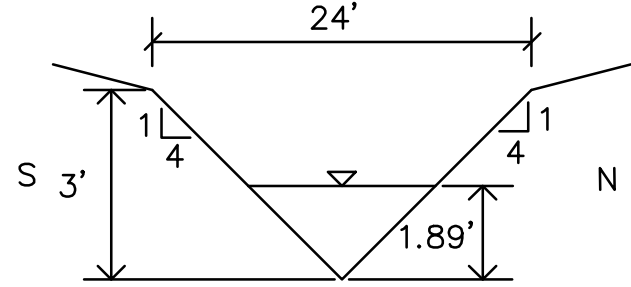
POND OUTLET OVERALL DETAIL

TIMBERRIDGE ESTATES - 9210 ARROYA LANE

EL PASO COUNTY

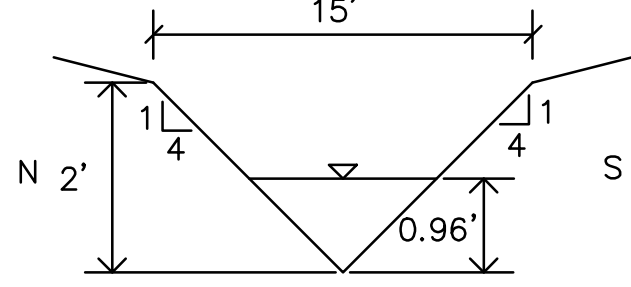
GRADING & EROSION CONTROL PLAN

AUGUST 2018



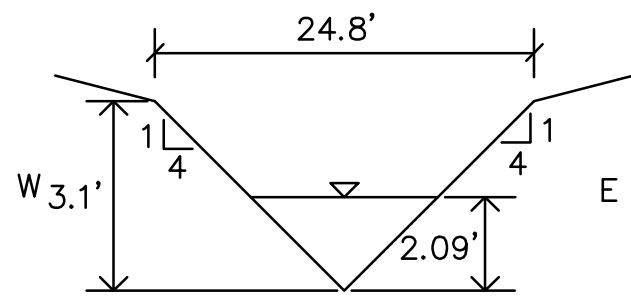
Q = 26.4 CFS
SLOPE = 3.9%
n VALUE = 0.15
DEPTH = 1.89'
VELOCITY = 1.85 FT/S

SWALE CROSS SECTION - EX9



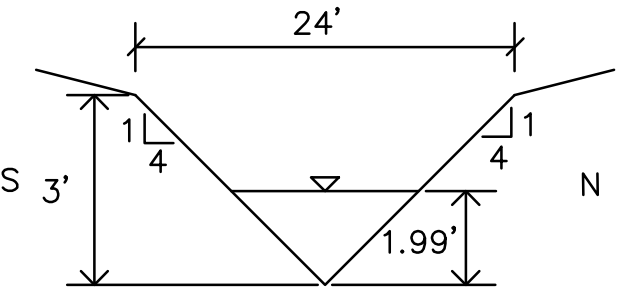
Q = 5.6 CFS
SLOPE = 7.8%
n VALUE = 0.15
DEPTH = 0.96'
VELOCITY = 1.66 FT/S

SWALE CROSS SECTION - PR11



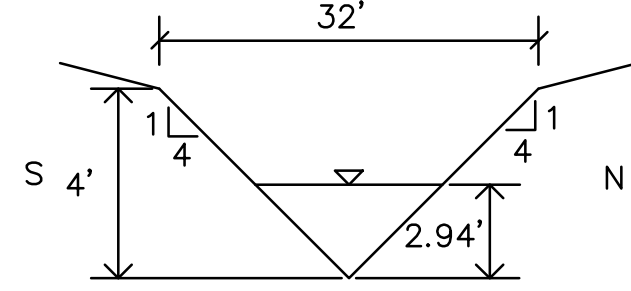
Q = 32.2 CFS
SLOPE = 3.4%
n VALUE = 0.15
DEPTH = 2.09'
VELOCITY = 1.84 FT/S

SWALE CROSS SECTION - EX10



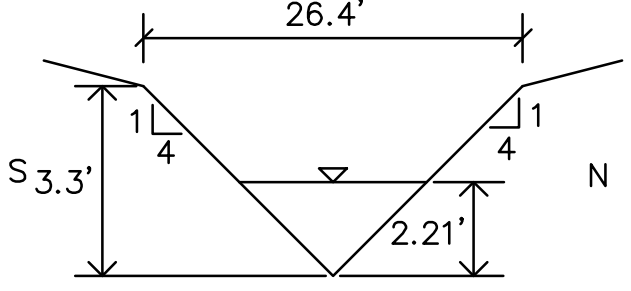
Q = 26.3 CFS
SLOPE = 3.0%
n VALUE = 0.15
DEPTH = 1.99'
VELOCITY = 1.68 FT/S

SWALE CROSS SECTION - EX5



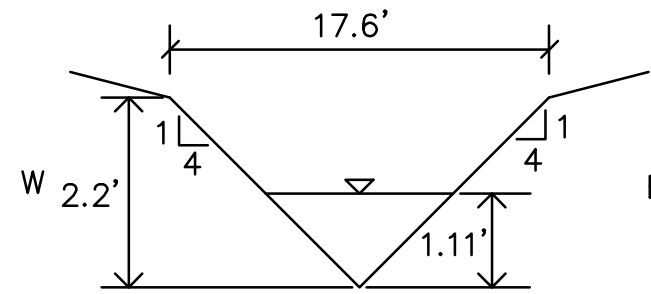
Q = 76.4 CFS
SLOPE = 3.1%
n VALUE = 0.15
DEPTH = 2.94'
VELOCITY = 2.21 FT/S

SWALE CROSS SECTION - EX11



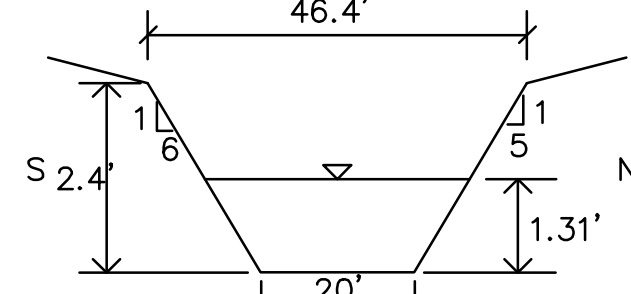
Q = 35.7 CFS
SLOPE = 3.1%
n VALUE = 0.15
DEPTH = 2.21'
VELOCITY = 1.83 FT/S

SWALE CROSS SECTION - EX6



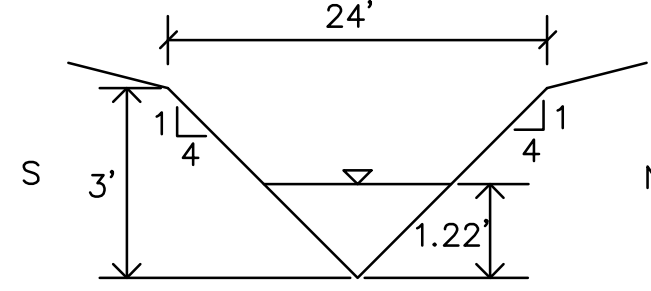
Q = 3.6 CFS
SLOPE = 1.3%
n VALUE = 0.15
DEPTH = 1.11'
VELOCITY = 0.75 FT/S

SWALE CROSS SECTION - PR6



Q = 41.0 CFS
SLOPE = 1.3%
n VALUE = 0.15
DEPTH = 1.31'
VELOCITY = 1.15 FT/S

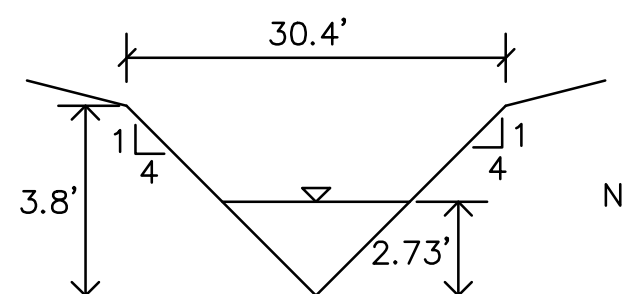
SWALE CROSS SECTION - PR1



Q = 8.2 CFS
SLOPE = 5.2%
n VALUE = 0.15
DEPTH = 1.22'
VELOCITY = 1.54 FT/S

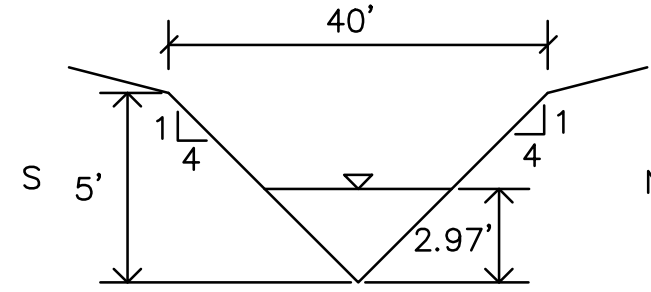
*EXPANDED TO ALLOW FOR
POSSIBLE FUTURE FLOW INCREASES

SWALE CROSS SECTION - PR7



Q = 80.4 CFS
SLOPE = 5.1%
n VALUE = 0.15
DEPTH = 2.73'
VELOCITY = 2.70 FT/S

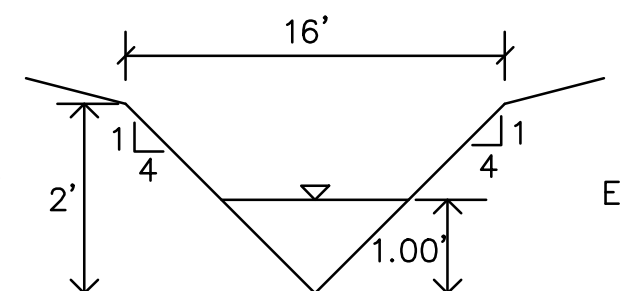
SWALE CROSS SECTION - PR2



Q = 99.7 CFS
SLOPE = 5.0%
n VALUE = 0.15
DEPTH = 2.97'
VELOCITY = 2.83 FT/S

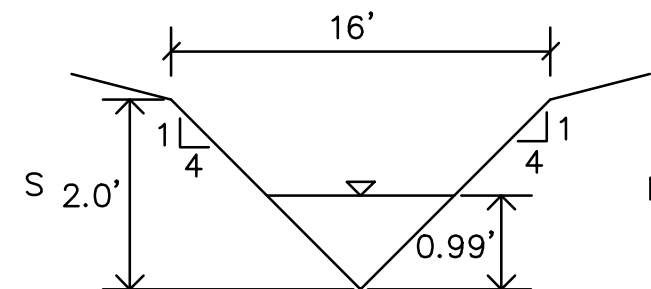
*EXPANDED TO ALLOW FOR
POSSIBLE FUTURE FLOW INCREASES

SWALE CROSS SECTION - PR8



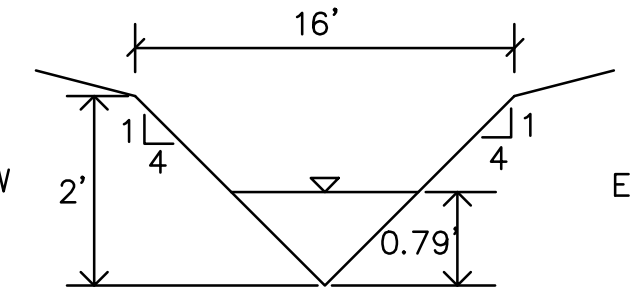
Q = 4.7 CFS
SLOPE = 3.7%
n VALUE = 0.15
DEPTH = 1.00'
VELOCITY = 1.18 FT/S

SWALE CROSS SECTION - PR3



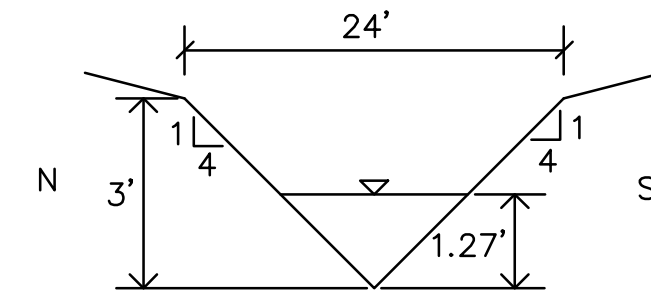
Q = 5.8 CFS
SLOPE = 6.0%
n VALUE = 0.15
DEPTH = 0.99'
VELOCITY = 1.49 FT/S

SWALE CROSS SECTION - PR9



Q = 3.2 CFS
SLOPE = 6.3%
n VALUE = 0.15
DEPTH = 0.79'
VELOCITY = 1.31 FT/S

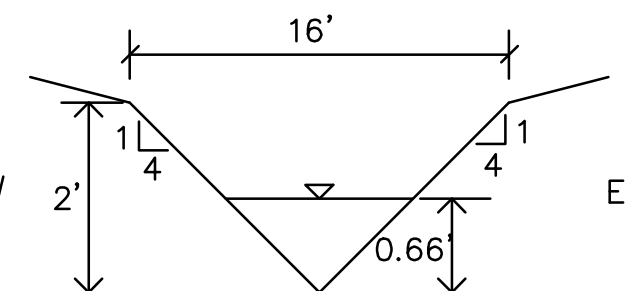
SWALE CROSS SECTION - PR4



Q = 10.5 CFS
SLOPE = 5.9%
n VALUE = 0.15
DEPTH = 1.27'
VELOCITY = 1.74 FT/S

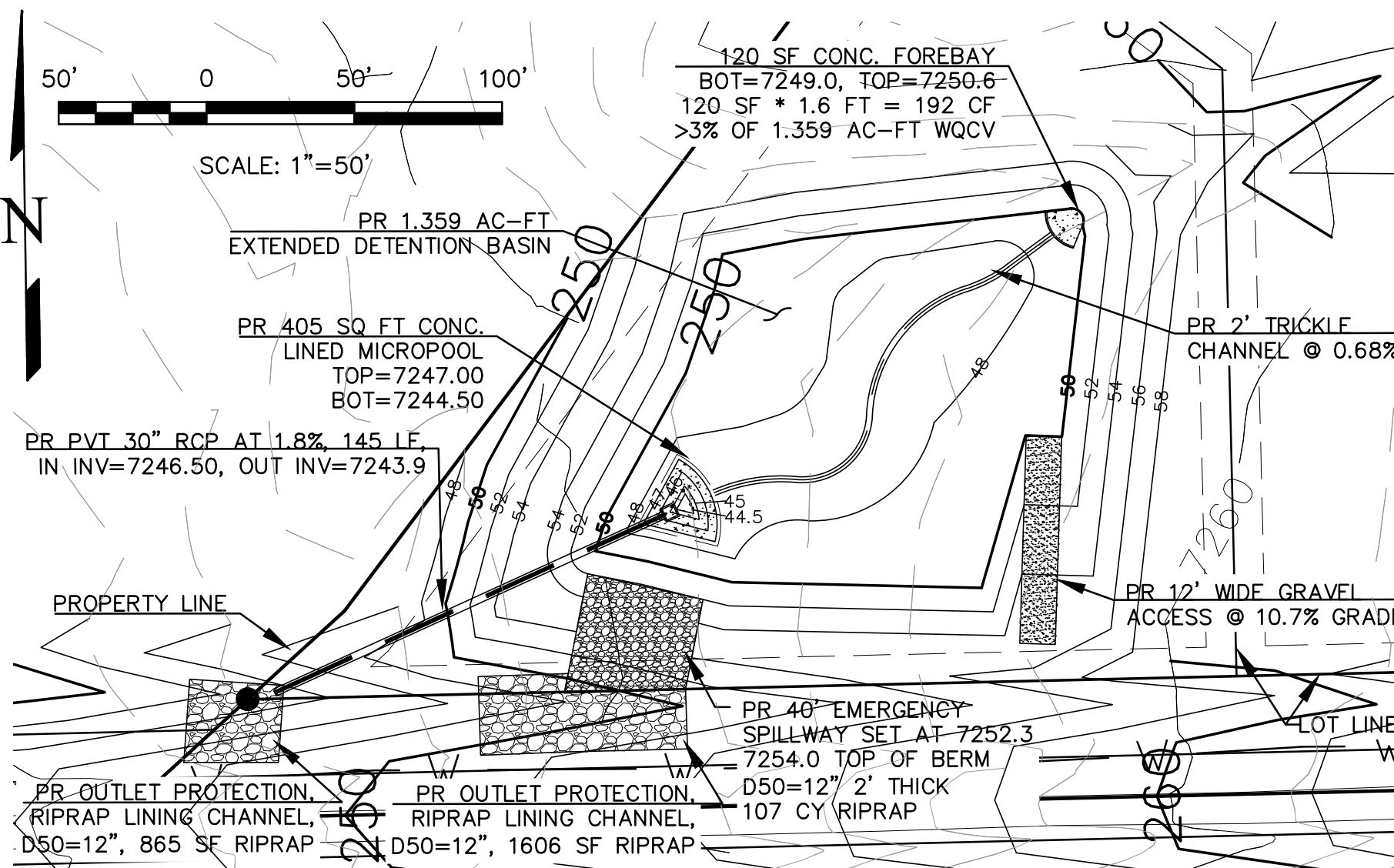
*EXPANDED TO ALLOW FOR
POSSIBLE FUTURE FLOW INCREASES

SWALE CROSS SECTION - PR10



Q = 0.9 CFS
SLOPE = 1.3%
n VALUE = 0.15
DEPTH = 0.66'
VELOCITY = 0.53 FT/S

SWALE CROSS SECTION - PR5



EXTENDED DETENTION BASIN DETAIL

REVISIONS	
NO.	DESCRIPTION

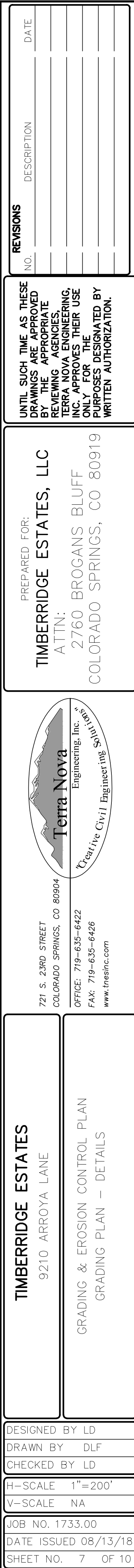
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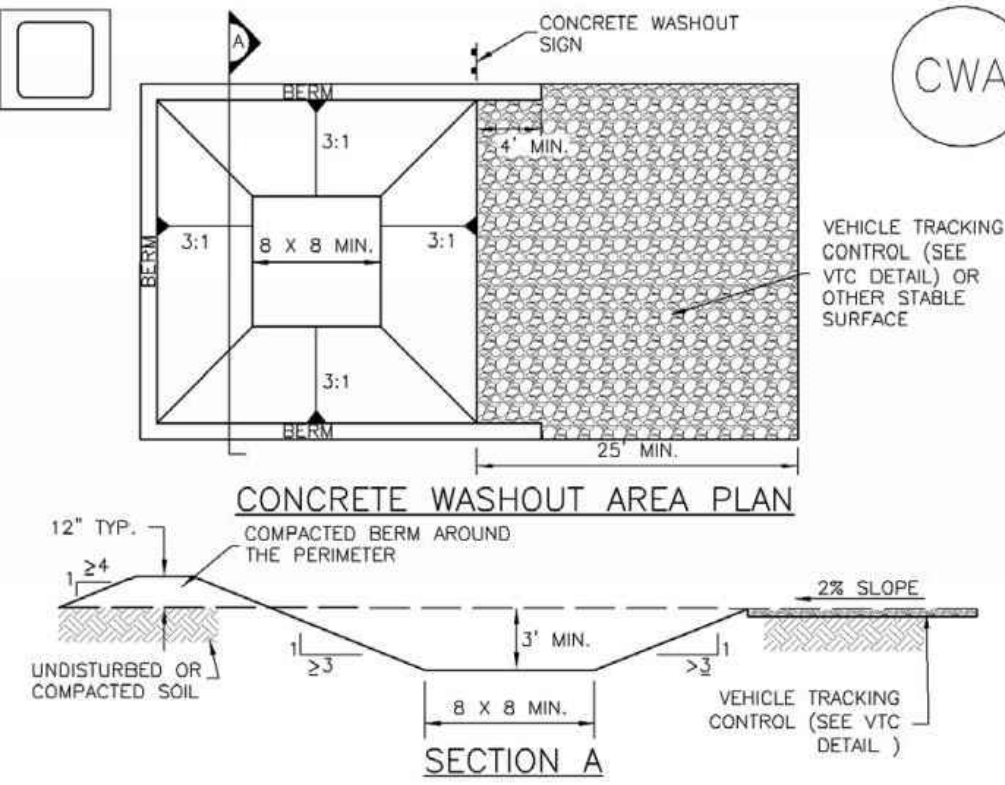
TIMBERRIDGE ESTATES
9210 ARROYA LANE
GRADING & EROSION CONTROL PLAN
GRADING PLAN - DETAILS

DESIGNED BY LD
DRAWN BY DLF
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H-SCALE 1"=200'
V-SCALE NA
JOB NO. 1733.00
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Concrete Washout Area (CWA)MM-1



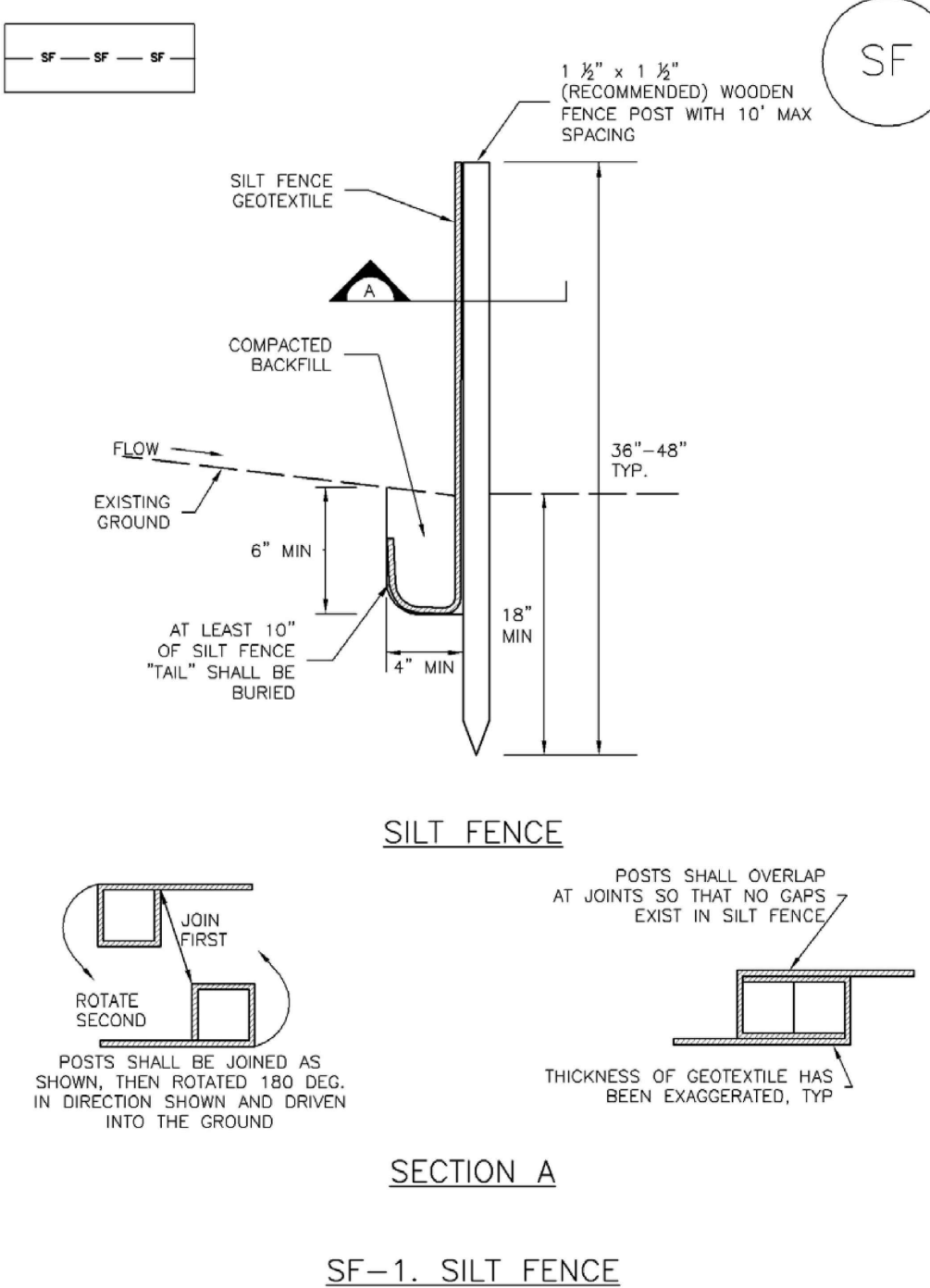
CWA-1. CONCRETE WASHOUT AREA

CWA INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
-CWA INSTALLATION LOCATION.
2. DO NOT LOCATE AN UNLINED CWA WITHIN 400' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY. DO NOT LOCATE WITHIN 1,000' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONSTRAINTS MAKE THIS INFEASIBLE, OR IF HIGHLY PERMEABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (16 MIL MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE ARE SHOULD BE USED.
3. THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
4. CWA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8' SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER. THE PIT SHALL BE AT LEAST 3' DEEP.
5. BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.
6. VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.
7. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
8. USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

November 2010 Urban Drainage and Flood Control District CWA-3
Urban Storm Drainage Criteria Manual Volume 3

Silt Fence (SF)SC-1



SF-1. SILT FENCE

November 2010 Urban Drainage and Flood Control District SF-3
Urban Storm Drainage Criteria Manual Volume 3

Concrete Washout Area (CWA)MM-2

CWA MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
 2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
 3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
 4. THE CWA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS, ACCUMULATED IN PIT, SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF 2'.
 5. CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE AND ALL OTHER DEBRIS IN THE SUBSURFACE PIT SHALL BE TRANSPORTED FROM THE JOB SITE IN A WATER-TIGHT CONTAINER AND DISPOSED OF PROPERLY.
 6. THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.
 7. WHEN THE CWA IS REMOVED, COVER THE DISTURBED AREA WITH TOP SOIL, SEED AND MULCH OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.
- (DETAIL ADAPTED FROM DOUGLAS COUNTY, COLORADO AND THE CITY OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)
- NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

CWA-4 Urban Drainage and Flood Control District November 2010
Urban Storm Drainage Criteria Manual Volume 3

Silt Fence (SF)SC-1

SILT FENCE INSTALLATION NOTES

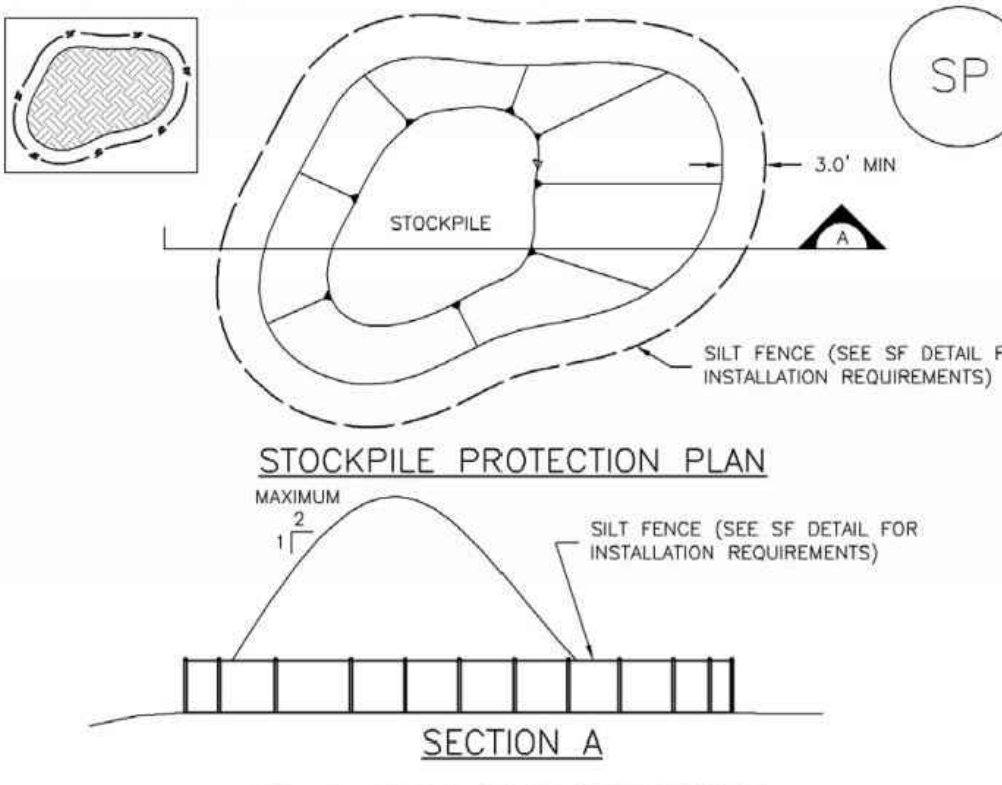
1. SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2-3 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.
2. A UNIFORM 6" X 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE. NO ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.
3. COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.
4. SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.
5. SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.
6. AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "J-HOOK." THE "J-HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' - 20').
7. SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

SILT FENCE MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
 2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
 3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
 4. SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP. TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".
 5. REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.
 6. SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.
 7. WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.
- (DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, NOT AVAILABLE IN AUTOCAD)
- NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

SF-4 Urban Drainage and Flood Control District November 2010
Urban Storm Drainage Criteria Manual Volume 3

Stockpile Management (SP)MM-2



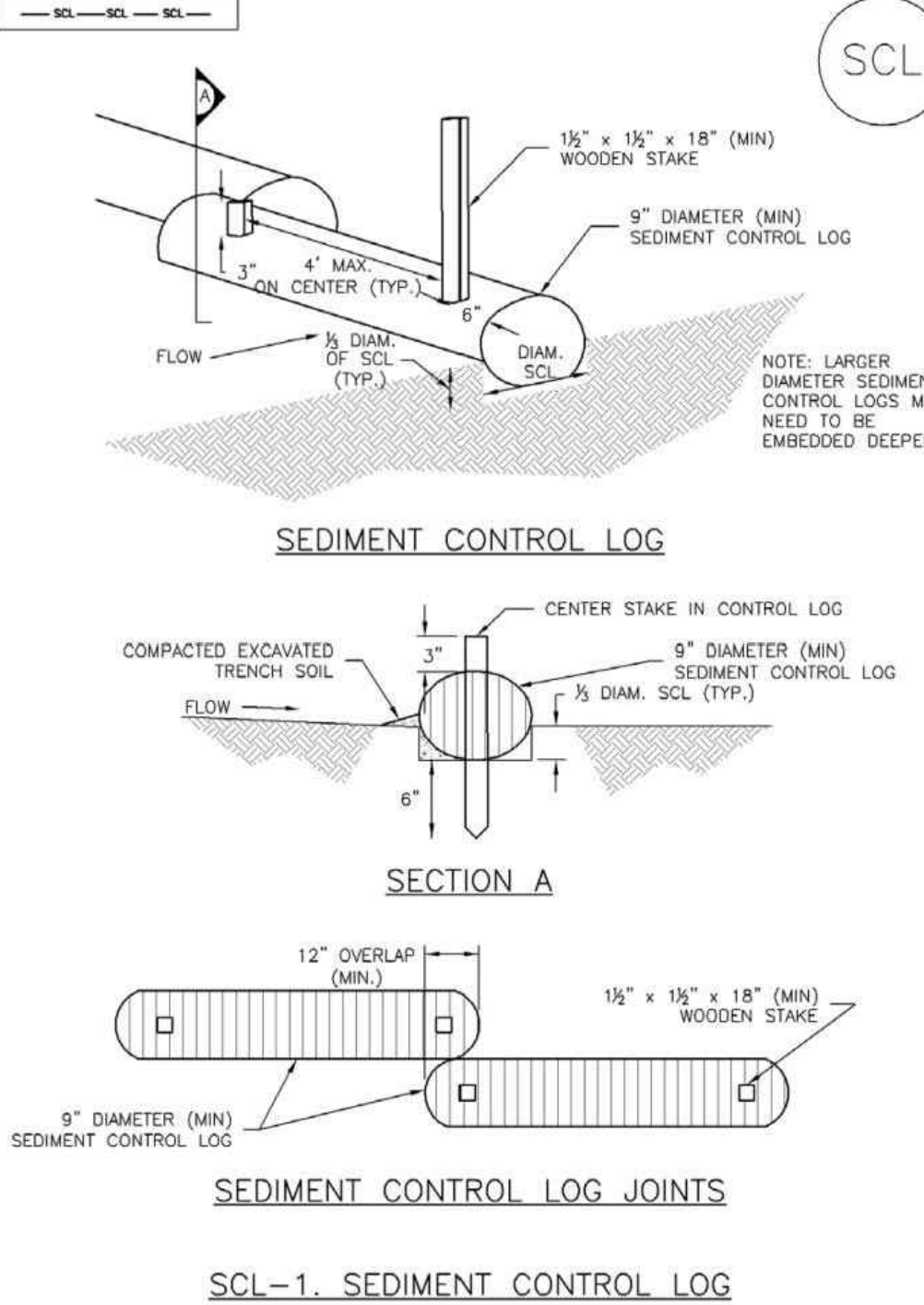
SP-1. STOCKPILE PROTECTION

STOCKPILE PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
-LOCATION OF STOCKPILES.
-TYPE OF STOCKPILE PROTECTION.
2. INSTALL PERIMETER CONTROLS IN ACCORDANCE WITH THEIR RESPECTIVE DESIGN DETAILS. SILT FENCE IS SHOWN IN THE STOCKPILE PROTECTION DETAILS; HOWEVER, OTHER TYPES OF PERIMETER CONTROLS INCLUDING SEDIMENT CONTROL LOGS OR ROCK SOCKS MAY BE SUITABLE IN SOME CIRCUMSTANCES. CONSIDERATIONS FOR DETERMINING THE APPROPRIATE TYPE OF PERIMETER CONTROL FOR A STOCKPILE INCLUDE WHETHER THE STOCKPILE IS LOCATED ON A PERVIOUS OR IMPERVIOUS SURFACE, THE RELATIVE HEIGHTS OF THE PERIMETER CONTROL AND STOCKPILE, THE ABILITY OF THE PERIMETER CONTROL TO CONTAIN THE STOCKPILE WITHOUT FAILING IN THE EVENT THAT MATERIAL FROM THE STOCKPILE SHIFTS OR SLUMPS AGAINST THE PERIMETER, AND OTHER FACTORS.
3. STABILIZE THE STOCKPILE SURFACE WITH SURFACE ROUGHENING, TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS, OR SOIL BINDERS. SOILS STOCKPILED FOR AN EXTENDED PERIOD (TYPICALLY FOR MORE THAN 60 DAYS) SHOULD BE SEEDED AND MULCHED WITH A TEMPORARY GRASS COVER ONCE THE STOCKPILE IS PLACED (TYPICALLY WITHIN 14 DAYS). USE OF MULCH ONLY OR A SOIL BINDER IS ACCEPTABLE IF THE STOCKPILE WILL BE IN PLACE FOR A MORE LIMITED TIME PERIOD (TYPICALLY 30-60 DAYS).
4. FOR TEMPORARY STOCKPILES ON THE INTERIOR PORTION OF A CONSTRUCTION SITE, WHERE OTHER DOWNGRADEMENT CONTROLS, INCLUDING PERIMETER CONTROL, ARE IN PLACE, STOCKPILE PERIMETER CONTROLS MAY NOT BE REQUIRED.

November 2010 Urban Drainage and Flood Control District SP-3
Urban Storm Drainage Criteria Manual Volume 3

Sediment Control Log (SCL)SC-2



SCL-1. SEDIMENT CONTROL LOG

November 2010 Urban Drainage and Flood Control District SCL-3
Urban Storm Drainage Criteria Manual Volume 3

Stockpile Management (SM)MM-2

STOCKPILE PROTECTION MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
 2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
 3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
 4. IF PERIMETER PROTECTION MUST BE MOVED TO ACCESS SOIL STOCKPILE, REPLACE PERIMETER CONTROLS BY THE END OF THE WORKDAY.
 5. STOCKPILE PERIMETER CONTROLS CAN BE REMOVED ONCE ALL THE MATERIAL FROM THE STOCKPILE HAS BEEN USED.
- (DETAILS ADAPTED FROM PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)
- NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

SP-4 Urban Drainage and Flood Control District November 2010
Urban Storm Drainage Criteria Manual Volume 3

Sediment Control Log (SCL)SC-2

SEDIMENT CONTROL LOG INSTALLATION NOTES

1. SEE PLAN VIEW FOR LOCATION AND LENGTH OF SEDIMENT CONTROL LOGS.
2. SEDIMENT CONTROL LOGS THAT ACT AS A PERIMETER CONTROL SHALL BE INSTALLED PRIOR TO ANY UPGRADEMENT LAND-DISTURBING ACTIVITIES.
3. SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR OR COCONUT FIBER, AND SHALL BE FREE OF ANY NOXIOUS WEED SEEDS OR DEFECTS INCLUDING RIPS, HOLES AND OBVIOUS WEAR.
4. SEDIMENT CONTROL LOGS MAY BE USED AS SMALL CHECK DAMS IN DITCHES AND SWALES. HOWEVER, THEY SHOULD NOT BE USED IN PERENNIAL STREAMS OR HIGH VELOCITY DRAINAGE WAYS.
5. IT IS RECOMMENDED THAT SEDIMENT CONTROL LOGS BE TRENCHED INTO THE GROUND TO A DEPTH OF APPROXIMATELY 1/2 OF THE DIAMETER OF THE LOG. IF TRENCHING TO THIS DEPTH IS NOT FEASIBLE AND/OR DESIRABLE (SHORT TERM INSTALLATION WITH DESIRE NOT TO DAMAGE LANDSCAPE) A LESSER TRENCHING DEPTH MAY BE ACCEPTABLE WITH MORE ROBUST STAKING.
6. THE UPHILL SIDE OF THE SEDIMENT CONTROL LOG SHALL BE BACKFILLED WITH SOIL THAT IS FREE OF ROCKS AND DEBRIS. THE SOIL SHALL BE TIGHTLY COMPACTED INTO THE SHAPE OF A RIGHT TRIANGLE USING A SHOVEL OR WEIGHTED LAWN ROLLER.
7. FOLLOW MANUFACTURERS' GUIDANCE FOR STAKING. IF MANUFACTURERS' INSTRUCTIONS DO NOT SPECIFY SPACING, STAKES SHALL BE PLACED ON 4' CENTERS AND EMBEDDED A MINIMUM OF 6" INTO THE GROUND. 3" OF THE STAKE SHALL PROTRUDE FROM THE TOP OF THE LOG. STAKES THAT ARE BROKEN PRIOR TO INSTALLATION SHALL BE REPLACED.

SEDIMENT CONTROL LOG MAINTENANCE NOTES

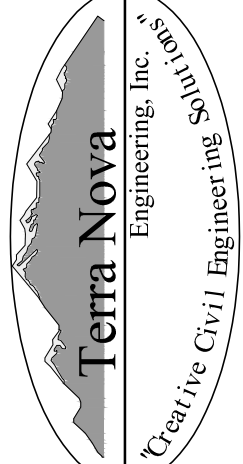
1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
 2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
 3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
 4. SEDIMENT ACCUMULATED UPSTREAM OF SEDIMENT CONTROL LOG SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP. TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 1/2 OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.
 5. SEDIMENT CONTROL LOG SHALL BE REMOVED AT THE END OF CONSTRUCTION. IF DISTURBED AREAS EXIST AFTER REMOVAL, THEY SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.
- (DETAILS ADAPTED FROM TOWN OF PARKER, COLORADO, JEFFERSON COUNTY, COLORADO, DOUGLAS COUNTY, COLORADO, AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)
- NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

November 2010 Urban Drainage and Flood Control District SCL-5
Urban Storm Drainage Criteria Manual Volume 3

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PREPARED FOR: TIMBERRIDGE ESTATES, LLC ATTN: 2760 BROGANS BLUFF COLORADO SPRINGS, CO 80919

 Terra Nova Engineering, Inc. Creative Civil Engineering
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TIMBERRIDGE ESTATES 9210 ARROYA LANE
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GRADING & EROSION CONTROL PLAN EROSION CONTROL PLAN - DETAILS
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CHECKED BY LD
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V-SCALE NA
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SM-6



1. SEE PLAN VIEW FOR
- LOCATION OF STAGING AREA(S).
- CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.
2. STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE. OVERSIZING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.
3. STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE.
4. THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" THICK GRANULAR MATERIAL.
5. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SPEC. #703, AASHTO #3 COURSE AGGREGATE OR 6" (MINUS) ROCK.
6. ADDITIONAL PERIMETER BMPs MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT FENCE AND CONSTRUCTION FENCING.

STABILIZED STAGING AREA MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.

SSA-3



November 2010

Stabilized Staging Area (SSA)

STABILIZED STAGING AREA MAINTENANCE NOTES

6. THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE LOCAL JURISDICTION, USED ON SITE, AND THE AREA COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

NOTE: MANY MUNICIPALITIES PROHIBIT THE USE OF RECYCLED CONCRETE AS GRANULAR MATERIAL FOR STABILIZED STAGING AREAS DUE TO DIFFICULTIES WITH RE-ESTABLISHMENT OF VEGETATION IN AREAS WHERE RECYCLED CONCRETE WAS PLACED.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO, NOT AVAILABLE IN AUTOCAD)

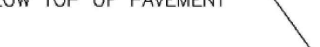
November 2010

EC-6

STAKING PATTERNS BY SLOPE OR CHANNEL TYPE

RECP-7

SM-4



VTC-1. AGGREGATE VEHICLE TRACKING CONTROL

VTC 3

EROSION CONTROL BLANKET INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
 - LOCATION OF ECB
 - TYPE OF ECB (STRAW, STRAW-COCOONUT, COCONUT, OR EXCISLOR).
 - AREA, A, IN SQUARE YARDS OF EACH TYPE OF ECB.
2. 100% NATURAL AND BIODEGRADABLE MATERIALS ARE PREFERRED FOR RECPs, ALTHOUGH SOME JURISDICTIONS MAY ALLOW OTHER MATERIALS IN SOME APPLICATIONS.
3. IN AREAS WHERE ECBs ARE SHOWN ON THE PLANS, THE PERMITTEE SHALL PLACE AND MAINTAIN PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING AND MULCHING SUBGRADE SHALL BE SMOOTH AND MOST PRIOR TO ECB INSTALLATION AND THE ECB SHALL CONTACT WITH SUBGRADE. NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.
4. PERMITTEE ANCHOR TRENCH SHALL BE USED ALONG THE OUTSIDE PERIMETER OF ALL BLANKET AREAS.
5. JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL ECBs EXCEPT STRAW WHICH MAY USE AN OVERLAPPING JOINT.
6. INTERMEDIATE ANCHOR TRENCH SHALL BE USED AT SPACING OF ONE-HALF ROLL LENGTH FOR COCONUT AND EXCISLOR ECBs.
7. OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER FOR ECBs ON SLOPES.
8. MATERIAL SPECIFICATIONS OF ECBs SHALL CONFORM TO TABLE ECB-1.
9. ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING ECBs SHALL BE RESEED AND MULCH.
10. DETAILS ON DESIGN PLANS FOR MAJOR DRAINAGEWAY STABILIZATION WILL GOVERN IF DIFFERENT FROM THOSE SHOWN HERE.

*STRAW ECBs MAY ONLY BE USED OUTSIDE OF STREAMS AND DRAINAGE CHANNEL.
**ALTERNATE NETTING MAY BE ACCEPTABLE IN SOME JURISDICTIONS

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Vehicle Tracking Control (VTC)

STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES

1. SEE PLAN VIEW FOR
-LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S)
-TYPE OF CONSTRUCTION ENTRANCE(S)/EXIT(S) (WITH/WITHOUT WHEEL WASH,
CONSTRUCTION MAT OR TRM)
2. CONSTRUCTION MAT OR TRM STABILIZED CONSTRUCTION ENTRANCES ARE ONLY TO BE
USED ON SHORT-DURATION PROJECTS (TYPICALLY RANGING FROM A WEEK TO A MONTH)
3. A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS
WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT-OF-WAYS.
4. STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND
DISTURBING ACTIVITIES.
5. A NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE STABILIZED
CONSTRUCTION ENTRANCE/EXIT PRIOR TO THE PLACEMENT OF ROCK.
6. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF #3

STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROGNOSTIC, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE AFTER ANY WEATHER EVENT THAT MAY BE CAUSING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN PROPER OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON IDENTIFICATION OF THE FAILURE.
4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.
5. SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED THROUGHOUT THE DAY AND AT THE END OF THE DAY BY SHOVELING OR SWEEPING. SEDIMENT MAY NOT BE WASHED OFF PAVED SURFACES.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM CITY OF BROOMFIELD, COLORADO, NOT AVAILABLE IN AUTOCAD)

November 2010

EC-6

EROSION CONTROL BLANKET MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS THERE ARE ANY INDICATORS OF PROBLEMS FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. ECBs SHALL BE LEFT IN PLACE TO EVENTUALLY BIODEGRADE, UNLESS REQUESTED TO BE REMOVED BY THE LOCAL JURISDICTION.
5. ANY ECB PULLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE REPAIRED OR REINSTALLED. ANY SUBGRADE AREAS BELOW THE GEOTEXTILE THAT HAVE ERODED TO CREATED AREAS SHALL BE REPAIRED. THE REMOVED AREAS OF GRASS SHALL BE REPAIRED, RESEEDDED AND MULCHED AND THE ECB REINSTALLED.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO AND TOWN OF PARKER COLORADO, NOT AVAILABLE IN AUTOCAD)

REFP-9

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DRAWN BY	DLF
CHECKED BY	LD
H-SCALE	NA
V-SCALE	NA
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