

**EPC STORMWATER REVIEW COMMENTS
IN ORANGE BOXES WITH BLACK TEXT**

**PCD-ENGINEERING REVIEW COMMENTS
IN BLUE BOXES WITH BLUE TEXT**

See comment letter.

FINAL SITE GRADING CONSTRUCTION PLANS
FOR

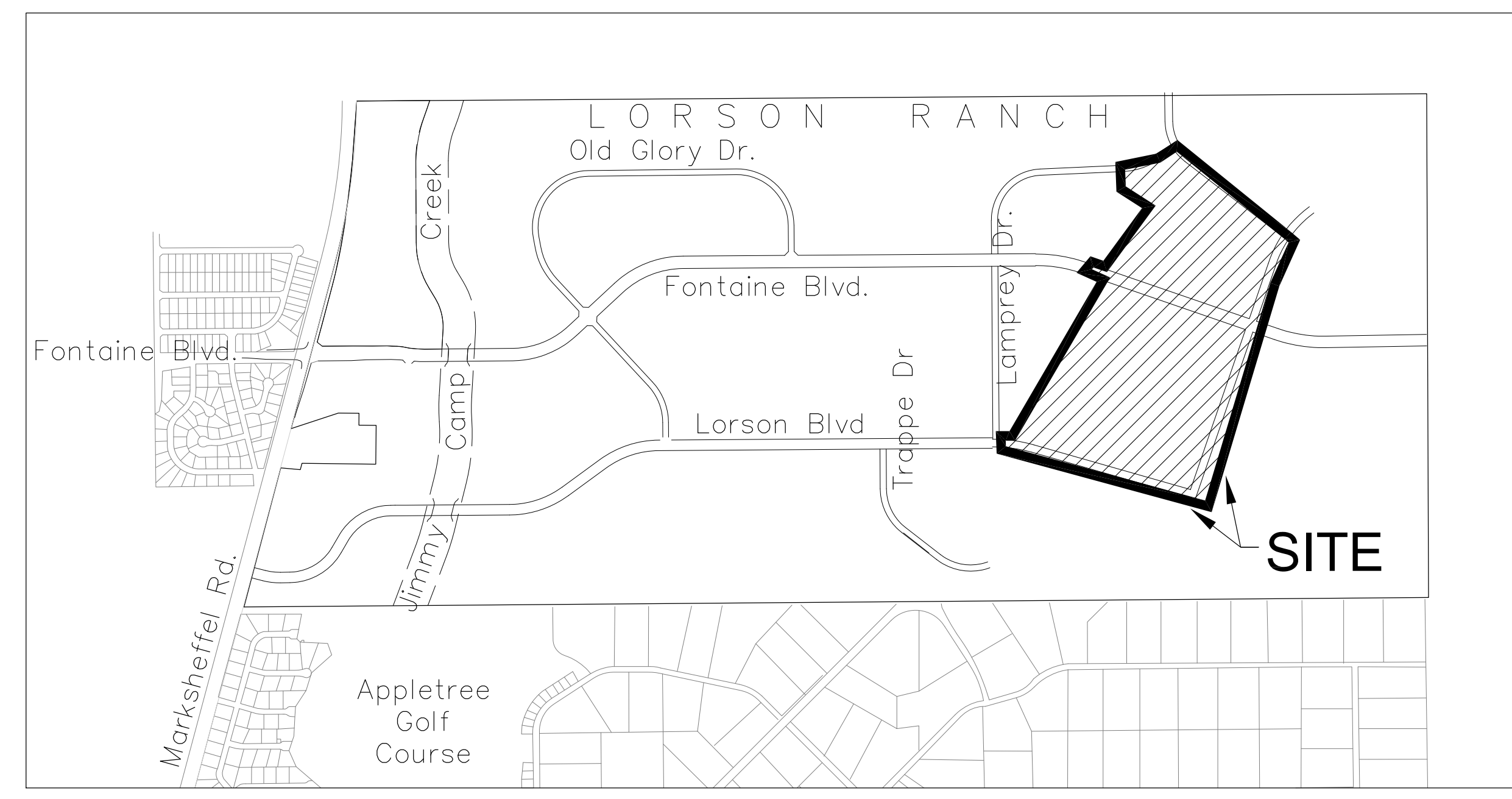
THE HILLS AT LORSON RANCH FILING NO. 1

FINAL GRADING / EROSION CONTROL PLANS



**Know what's below.
Call before you dig.**

CALL 2-BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE OR
EXCAVATE FOR THE MARKING OF
UNDERGROUND MEMBER UTILITIES



VICINITY MAP
NO SCALE

SHEET INDEX	
SHEET NO.	SHEET DESCRIPTION
C0.1	COVER SHEET
C0.2	NOTES (GENERAL, GRADING, EROSION CONTROL)
C0.3	TYPICAL SECTIONS
C4.1 ~ C4.6	GRADING AND EROSION CONTROL PLAN
C5.1 ~ C5.4	POND GRADING AND DETAILS
C12.1 ~ C12.3	DETAILS

DEVELOPER'S STATEMENT

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

OWNERS SIGNATURE _____ DATE _____

WATER / SANITARY
WIDEFIELD WATER AND SANITATION DISTRICT
8495 FONTAINE BLVD.
COLORADO SPRINGS, CO 80925
719-390-7111

CABLE
COMCAST
P.O. BOX 173838
DENVER, CO 80217
970-641-4774

ELECTRIC
MOUNTAIN VIEW ELECTRIC
11140 E. WOODMEN RD.
COLORADO SPRINGS, CO 80831
719-495-2283

SECURITY FIRE PROTECTION DISTRICT
400 SECURITY BOULEVARD
SECURITY, CO 80911
719-392-7121

PREPARED FOR:
LORSON, LLC
N. WAHSATCH AVE., SUITE 301
COLORADO SPRINGS, CO 80903
719-635-3200
CONTACT: JEFF MARK

PREPARED BY:
CORE ENGINEERING GROUP
15004 1ST AVENUE S.
BURNSVILLE, MN 55306
719-570-1100
CONTACT: RICHARD L. SCHINDLER P.E.

TELEPHONE
CENTURYLINK
7925 INDUSTRY ROAD
COLORADO SPRINGS, CO 80939
719-278-4651

GAS
BLACK HILLS ENGERGY
7060 ALLEGRE ST.
FOUNTAIN, CO 80817
719-393-6639

EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT
2880 INTERNATIONAL CIRCLE
COLORADO SPRINGS, CO 80910
719-520-6300

BASIS OF BEARING

BEARINGS ARE BASED ON THE SOUTH LINE OF THE NORTH HALF OF SECTION 23, TOWNSHIP 15 SOUTH, RANGE 65 WEST OF THE 6TH PRINCIPAL MERIDIAN AS BEING SOUTH 8941'52" WEST. THE EAST QUARTER CORNER OF SAID SECTION 23 IS A FOUND 3-1/2" ALUMINUM CAP MONUMENT AND THE WEST QUARTER CORNER OF SAID SECTION 23 IS A FOUND 2-1/2" ALUMINUM CAP MONUMENT

BENCHMARK

FIMS MONUMENT F204 LOCATED AT THE NORTHWEST CORNER OF FONTAINE BLVD AND COTTONWOOD GROVE DR. ELEVATION 5724.072 (N.G.V.D. 29)

TRAFFIC CONTROL NOTE

THE CONTRACTOR SHALL PROVIDE ALL TRAFFIC CONTROL DEVICES AND MONITORING NECESSARY TO SAFELY COMPLETE THE WORK SHOWN IN THESE CONSTRUCTION DOCUMENTS IN CONFORMANCE WITH M.U.T.C.D. GUIDELINES. THE CONTRACTOR SHALL COMPLETE ALL NECESSARY WORK FOR PLAN REVIEW, PERMITS AND PROCESSING. TRAFFIC CONTROL WILL NOT BE PAID SEPARATELY BUT IS INCLUDED IN THE COST OF THE PROJECT.

CONSTRUCTION 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 MANUAL VOLUMES 1 AND 2, AND ENGINEERING CRITERIA MANUAL, AS AMENDED.

FILED 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 **AN** COMMUNITY DEVELOPMENT DIRECTOR'S DISCRETION.

JENNIFER IRVINE, P.E., COUNTY ENGINEER/ECM ADMINISTRATOR DATE _____
CONDITIONS:

ENGINEER'S APPROVAL

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 NEGLIGENT ACTS, ERRORS, OR OMISSIONS ON MY PART IN PREPARING THIS PLAN

RICHARD L. SCHINDLER, P.E. # 33997
FOR AND ON BEHALF OF CORE ENGINEERING GROUP

CORE ENGINEERING GROUP
15004 1ST AVENUE S.
BURNSVILLE, MN 55306
PH: 719.570.1100
CONTACT: RICHARD L. SCHINDLER, P.E.
EMAIL: Rich@cog1.com

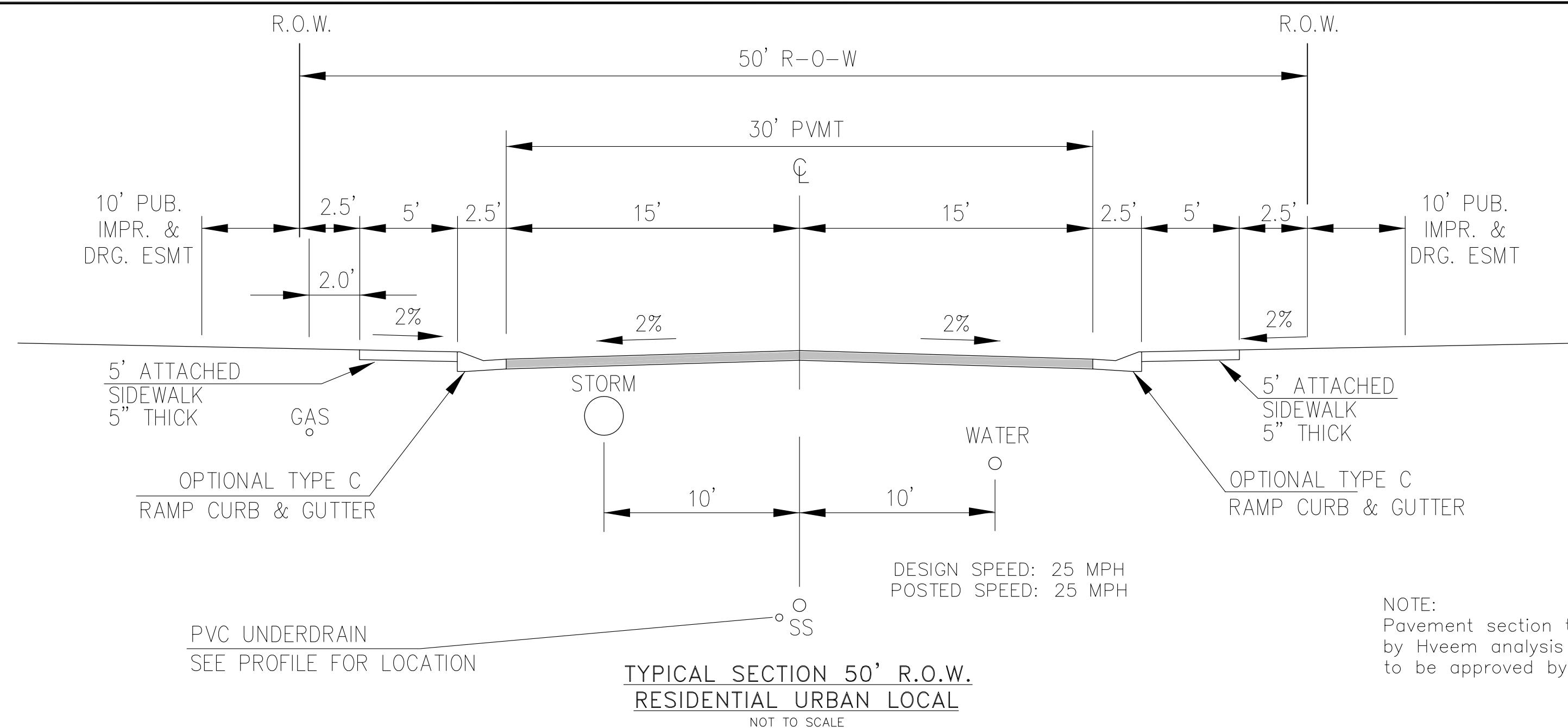
DATE _____
DESCRIPTION _____
NO. _____
DRAWN: RLS
DESIGNED: RLS
CHECKED: RLS
PROJECT: THE HILLS AT LORSON RANCH
212 N. WAHSATCH AVE, SUITE 301
COLORADO SPRINGS, COLORADO 80903
CONTACT: JEFF MARK

**COVER SHEET
FINAL GRADING AND
EROSION CONTROL PLAN**

DATE: JAN 18, 2021
PROJECT NO. 100.062
SHEET NUMBER C0.1
TOTAL SHEETS: 16

SF-21-010

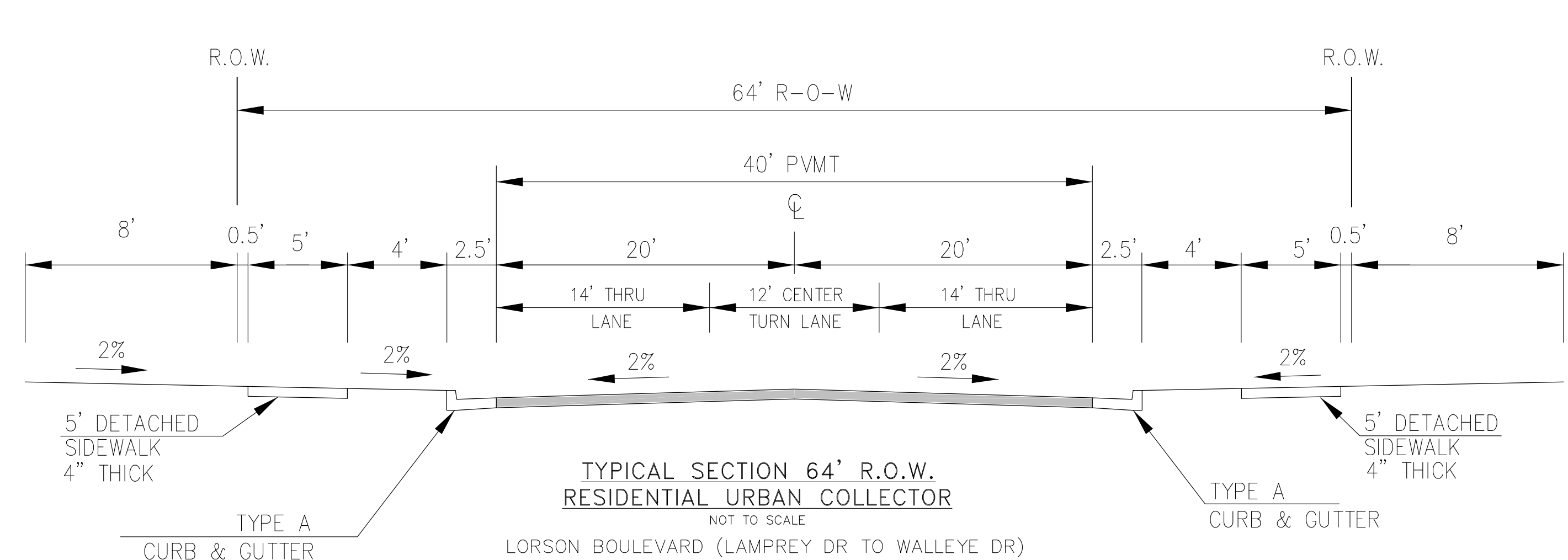
SF 21-00X



**TYPICAL SECTION 50' R.O.W.
RESIDENTIAL URBAN LOCAL**
NOT TO SCALE

MURRELET DR, BUFFLEHEAD LN, HOUSEFINCH LN, BOBOLINK TR, ANHINGA CT, YELLOWTHROAT TER, WIGEON WAY, SANDERLING ST, WHISTLING DUCK WAY, PIPING PLOVER PL, BIG BIRD DR, GODWIT LN, SCRUB JAY TR, PALAFOXIA PL, RUSHPINK ST, LAKE TROUT DR, SHADBUSH LN, KITFOX CT, ROUNDTAIL WAY, SPLAKE ST, SAUGEYE ST, PIKEMINNOW PL, BROOKTROUT TR, WIPER WAY

NOTE:
Pavement section to be determined by Hveem analysis and design. Design to be approved by El Paso County PCD Engineering

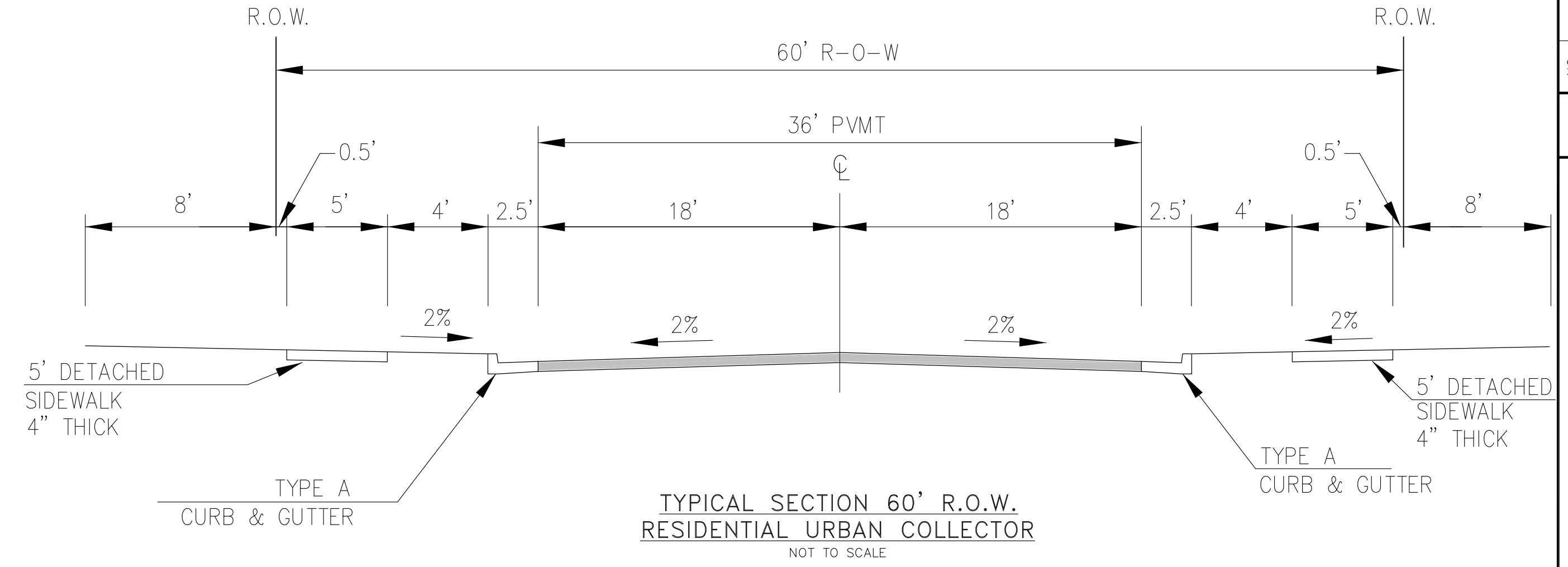


**TYPICAL SECTION 64' R.O.W.
RESIDENTIAL URBAN COLLECTOR**
NOT TO SCALE

LORSON BOULEVARD (LAMPREY DR TO WALLEYE DR)
WALLEYE DRIVE (LORSON BLVD TO FONTAINE BLVD)

DESIGN SPEED: 40 MPH
POSTED SPEED: 35 MPH

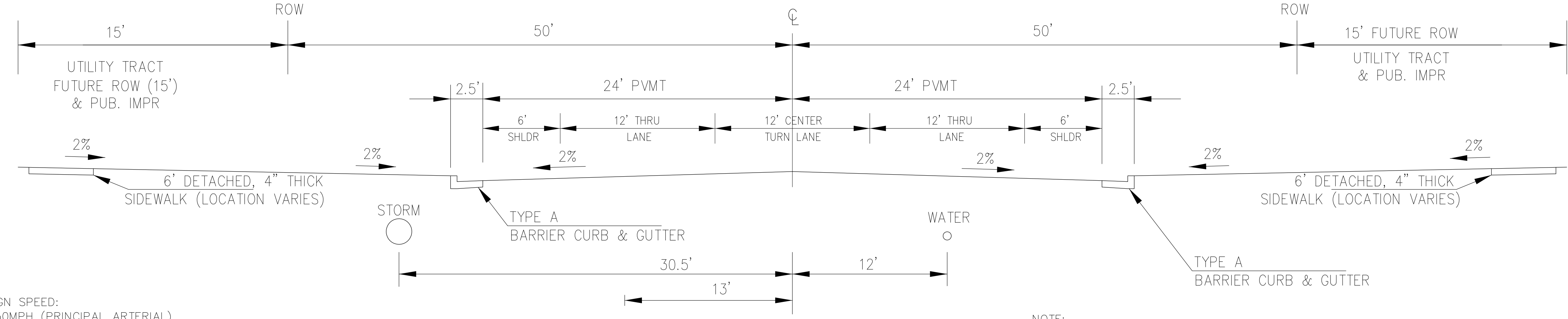
NOTE:
Pavement section to be determined by Hveem analysis and design. Design to be approved by PCD Engineering



**TYPICAL SECTION 60' R.O.W.
RESIDENTIAL URBAN COLLECTOR**
NOT TO SCALE

WALLEYE DRIVE (NORTH OF FONTAINE)
GRAYLING DRIVE, LAMPREY DRIVE

DESIGN SPEED: 40 MPH
POSTED SPEED: 35 MPH



**TYPICAL SECTION 100' R.O.W.
FONTAINE BLVD**
NOT TO SCALE

DESIGN SPEED:
1. 50MPH (PRINCIPAL ARTERIAL)
2. 40MPH FOR TAPERS (WESTBOUND) (NON-RES COLLECTOR)

NOTE:
Pavement section to be determined by Hveem analysis and design. Design to be approved by El Paso County PCD and Engineering

**CORE
ENGINEERING GROUP**
15004 1ST AVENUE S.
BURNSVILLE, MN 55306
PH: 719.570.1100
CONTACT: RICHARD L. SCHINDLER, P.E.
EMAIL: Rich@cegi.com

DATE: _____
DESCRIPTION: _____
NO. _____
DRAWN: RLS
DESIGNED: RLS
CHECKED: RLS
PROJECT: THE HILLS AT LORSON RANCH
PREPARED FOR: LORSON, LLC
212 N. WAHSATCH AVE, SUITE 301
COLORADO SPRINGS, COLORADO 80903
FONTAINE BLVD - WALLEYE DR
COLORADO SPRINGS, COLORADO
CONTACT: JEFF MARK

DATE: _____

PROJECT NO. 100.062

SHEET NUMBER C0.3

TOTAL SHEETS: 16

**FINAL
SITE GRADING
TYPICAL ROADWAY SECTIONS**

LEGEND

- 5721----- EXISTING MINOR CONTOUR
- 5720----- EXISTING MAJOR CONTOUR
- 5720----- PROPOSED CONTOUR
- EXISTING STORM SEWER
- (SF)----- PERIMETER EROSION CONTROL
SILT FENCE, EROSION LOG, OR EARTH BERM
- PERIMETER CONSTRUCTION FENCE (NEXT TO SCHOOL)
- SUBDIVISION BOUNDARY
- CONSTRUCTION BOUNDARY/LIMITS OF DISTURBANCE
- PROPERTY LINE OR TRACT LINE
- ROW LINE
- ← RUNOFF DIRECTION
- X% SLOPE DIRECTION AND GRADE
- CUT/FILL LINE
- (VTC) VEHICLE TRACKING CONTROL
- (SAND BAG) SAND BAG FOR STREET CURB/GUTTER
- (T) (G) (WO) LOT TYPE
TRANSITION, GARDEN, WALK-OUT
SEE DETAIL SHEET
- (PS) PERMANENT SEEDING
- (IP) INLET PROTECTION

NOTE:

1. SLOPES SHALL BE 3:1 UNLESS OTHERWISE NOTED
2. POND SLOPES SHALL BE 3:1
3. STRAW ECB SHALL BE PLACED ON ALL POND SIDE SLOPES AND PERMANENT SLOPES 4:1 OR STEEPER.
- (TS) 4. TEMPORARY SEEDING REQUIRED ON DISTURBED AREAS AND STOCKPILES WHICH ARE NOT AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 30 DAYS SHALL ALSO BE MULCHED AND SEEDED WITHIN 21 DAYS AFTER INTERIM GRADING.
5. THERE ARE NO ASPHALT BATCH PLANTS OR CONSTRUCTION OFFICE TRAILERS PLANNED FOR THIS SITE OR CONTRACTOR SHALL OBTAIN PERMIT IF DESIRED.
6. CONTRACTOR TO DETERMINE STOCKPILE AREAS AND STAGING AREAS AND SHOW THEM ON THE WORKING MAPS.
7. EXISTING VEGETATION CONSISTS OF GRASSES AND WEEDS. GROUND COVER ESTIMATED AT 70% DENSITY AND IS REQUIRED TO BE FIELD VERIFIED PRIOR TO CONSTRUCTION
8. THERE ARE NO STREAMS OR WETLANDS WITHIN THE LIMITS OF CONSTRUCTION

Final plat GEC Plan should show street curb & gutter, stormwater piping, and pond details for forebay and outlet structures.
Revise all sheets accordingly.

INITIAL BMP'S:

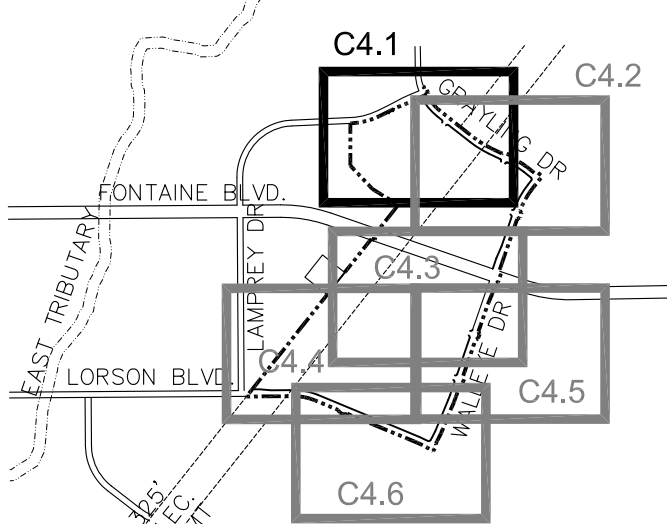
1. PERIMETER SILT FENCE
2. VEHICLE TRACKING CONTROL PADS
3. INLET PROTECTION FOR EXISTING POND OUTFALLS
4. INLET PROTECTION FOR EXISTING INLETS
4. PLACEMENT OF ON-SITE SWMP MANUAL

INTERIM BMP'S:

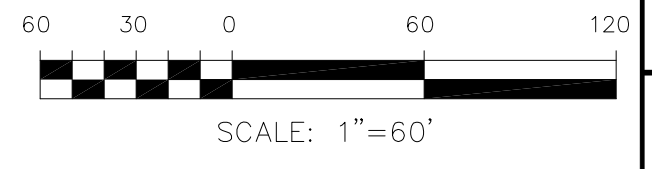
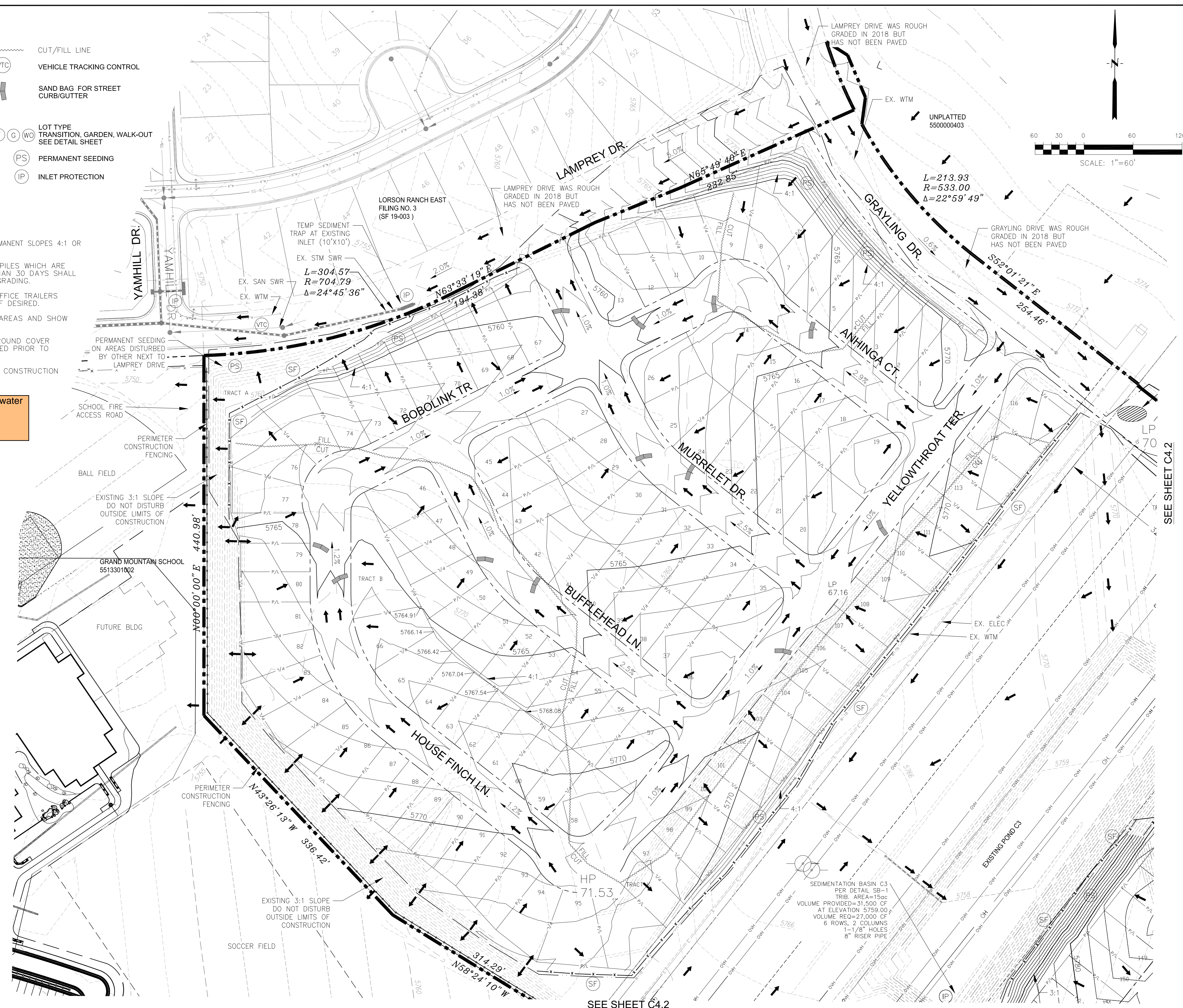
1. TEMPORARY SEDIMENT BASINS AS GRADING PROGRESSES
2. TEMPORARY SEEDING/MULCHING AS NEEDED
3. STRAW BALE CHECKS AS NEEDED DURING GRADING

FINAL BMP'S:

1. FINAL SEEDING AND MULCHING
2. STRAW ECB ON PERMANENT SLOPES 4:1 OR STEEPER.
3. POND OUTLET STRUCTURES



KEY MAP
NO SCALE



CORE ENGINEERING GROUP
1500R 151ST AVENUE, S.E.
DENVER, CO 80232
PH: 719.570.1100
CONTACT: RICHARD L. SCHINDLER, P.E.
EMAIL: Rich@ceg1.com

DATE: 11/24/2020
DESCRIPTION: ADD PERMANENT SEEDING AT LAMPREY/YAMHILL
PREPARED FOR: **LORSON, LLC**
212 N. WAHSATCH AVE, SUITE 301
COLORADO SPRINGS, COLORADO 80903
CONTACT: JEFF MARK

PROJECT: **THE HILLS AT LORSON RANCH**
FONTAINE BLVD. - WALLEYE DR
COLORADO SPRINGS, COLORADO

DRAWN: RLS
DESIGNED: RLS
CHECKED: RLS

**THE HILLS AT LORSON RANCH
FINAL GRADING AND
EROSION CONTROL PLAN**

DATE: JAN 18, 2021
PROJECT NO: 100.062
SHEET NUMBER: **C4.1**
TOTAL SHEETS: 16

SEE SHEET C4.2

SEE SHEET C4.2

NOTE:

- SLOPES SHALL BE 3:1 UNLESS OTHERWISE NOTED
- POND SLOPES SHALL BE 3:1
- STRAW ECB SHALL BE PLACED ON ALL POND SIDE SLOPES AND PERMANENT SLOPES 6:1 OR STEEPER.
- TEMPORARY SEEDING REQUIRED ON DISTURBED AREAS AND STOCKPILES WHICH ARE NOT AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 30 DAYS SHALL ALSO BE MULCHED AND SEEDING WITHIN 21 DAYS AFTER INTERIM GRADING.
- THERE ARE NO ASPHALT BATCH PLANTS OR CONSTRUCTION OFFICE TRAILERS PLANNED FOR THIS SITE OR CONTRACTOR SHALL OBTAIN PERMIT IF DESIRED.
- CONTRACTOR TO DETERMINE STOCKPILE AREAS AND STAGING AREAS AND SHOW THEM ON THE WORKING MAPS.
- EXISTING VEGETATION CONSISTS OF GRASSES AND WEEDS. GROUND COVER ESTIMATED AT 70% DENSITY AND IS REQUIRED TO BE FIELD VERIFIED PRIOR TO CONSTRUCTION
- THERE ARE NO STREAMS OR WETLANDS WITHIN THE LIMITS OF CONSTRUCTION

INITIAL BMP'S:

- PERIMETER SILT FENCE
- VEHICLE TRACKING CONTROL PADS
- INLET PROTECTION FOR EXISTING POND OUTFALLS
- INLET PROTECTION FOR EXISTING INLETS
- PLACEMENT OF ON-SITE SWMP MANUAL

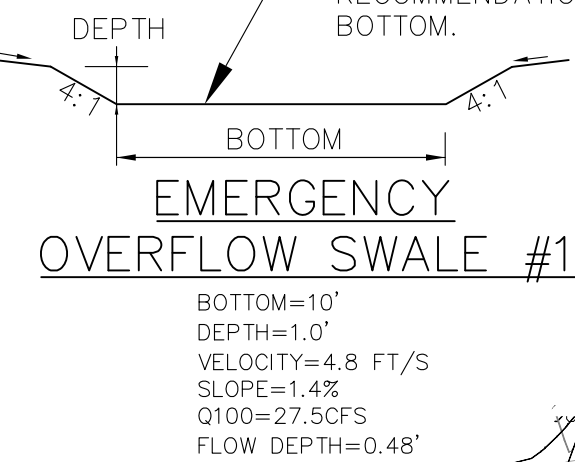
INTERIM BMP'S:

- TEMPORARY SEDIMENT BASINS AS GRADING PROGRESSES
- TEMPORARY SEEDING/MULCHING AS NEEDED
- STRAW BALE CHECKS AS NEEDED DURING GRADING

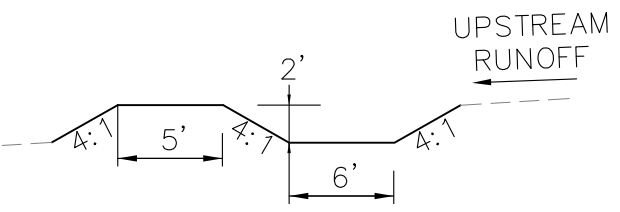
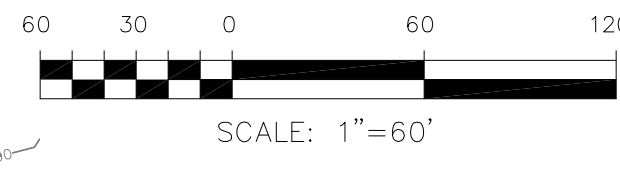
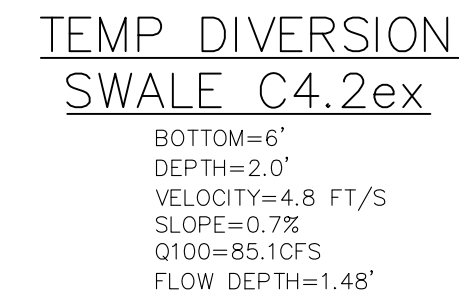
FINAL BMP'S:

- FINAL SEEDING AND MULCHING
- STRAW ECB ON PERMANENT SLOPES 6:1 OR STEEPER.
- POND OUTLET STRUCTURES

INSTALL DOUBLE MAT ECB OR EQUAL. INSTALLATION PER MANUFACTURER'S RECOMMENDATIONS ON SIDES AND BOTTOM.



SEDIMENTATION BASIN C3
 PER DETAIL SB-1
 TRIB. AREA=15ac
 VOLUME PROVIDED=31,500 CF
 AT ELEVATION 5759.00
 VOLUME REQ=27,000 CF
 6 ROWS, 2 COLUMNS
 1-1/8" HOLES
 8" RISER PIPE



CORE ENGINEERING GROUP
 1500R 151st AVENUE, SUITE 301
 PH: 719.570.1100
 CONTACT: RICHARD L. SCHINDLER, P.E.
 EMAIL: Rich@ceg.com

DATE: JAN 12, 2021
 DESCRIPTION: RAISE SITE 1' EAST OF POWERLINES
 NO. 1
 PREPARED FOR: **LORSON, LLC**
 212 N. WAHSATCH AVE, SUITE 301
 COLORADO SPRINGS, COLORADO 80903
 CONTACT: JEFF MARK

PROJECT: **THE HILLS AT LORSON RANCH**
 FONTAINE BLVD. - WALLEYE DR
 COLORADO SPRINGS, COLORADO

DRAWN: RLS
 DESIGNED: RLS
 CHECKED: RLS

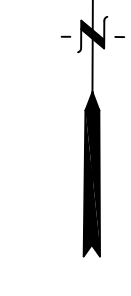
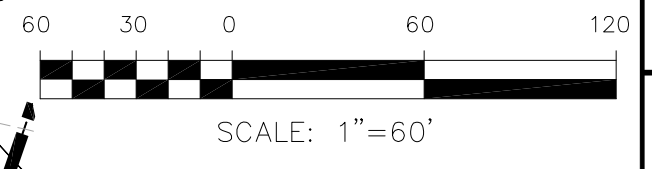
**THE HILLS AT LORSON RANCH
 FINAL GRADING AND
 EROSION CONTROL PLAN**

DATE: JAN 18, 2021
 PROJECT NO. 100.062
 SHEET NUMBER **C4.2**
 TOTAL SHEETS: 16





SEE SHEET C4.2



CORE
ENGINEERING GROUP
 1500R 151st AVENUE S.
 COLORADO SPRINGS, CO 80906
 PH: 719.570.1100
 CONTACT: RICHARD L. SCHINDLER, P.E.
 EMAIL: Rich@ceg1.com

DATE: JAN 12, 2021
 NO. 1: RAISE SITE 1' EAST OF POWERLINES
 DESCRIPTION: THE HILLS AT LORSON RANCH
 PROJECT: LORSON, LLC
 212 N. WAHSATCH AVE, SUITE 301
 COLORADO SPRINGS, COLORADO 80903
 FONTAINE BLVD. - WALLEYE DR
 COLORADO SPRINGS, COLORADO
 CONTACT: JEFF MARK

DRAWN: RLS
 DESIGNED: RLS
 CHECKED: RLS

**THE HILLS AT LORSON RANCH
 FINAL GRADING AND
 EROSION CONTROL PLAN**

DATE: JAN 18, 2021
 PROJECT NO. 100.062
 SHEET NUMBER C4.3
 TOTAL SHEETS: 16

GRAND MOUNTAIN SCHOOL
 5613301002

SEDIMENTATION BASIN C2.2
 PER DETAIL SB-1
 TRIB. AREA=164c
 VOLUME PROVIDED=30,000 CF
 AT ELEVATION 5747.20
 VOLUME REQ=28,000 CF
 6 ROWS, 2 COLUMNS
 7 1" HOLES
 8" RISER PIPE

SEDIMENTATION BASIN C2.3
 PER DETAIL SB-1
 TRIB. AREA=150c
 VOLUME PROVIDED=30,000 CF
 AT ELEVATION 5747.20
 VOLUME REQ=27,000 CF
 6 ROWS, 2 COLUMNS
 1" HOLES
 8" RISER PIPE

POND C2.3
 SEE POND DETAILS

POND C2.2
 SEE POND DETAILS

POND C2.2
 SEE POND DETAILS

TEMP SEDIMENT TRAP (10'X10')

TEMP SEDIMENT TRAP (10'X10')

TEMP SEDIMENT TRAP (10'X10')

POND C2.1
 SEE POND DETAILS

TEMPORARY SEDIMENT TRAP
 TOP=5788.00
 BTM = 5785.00
 48" STANDPIPE
 BOTTOM=10'X10', 4:1 SLOPES

FUTURE 48" CMP STANDPIPE
 SEE DETAIL SHEET

SEDIMENTATION BASIN 1
 FOR OFFSITE GRADING AREA
 PER DETAIL SB-1
 TRIB. AREA=30c
 VOLUME PROVIDED=9,700 CF
 AT ELEVATION 5783.00
 VOLUME REQ=5,400 CF
 BTM = 5781.30
 5 ROWS, 2 COLUMNS
 3/4" HOLES
 8" RISER PIPE

CHECK DAM

TEMP CHECK DAM

TEMP CHECK DAM

TEMP CHECK DAM

TEMP CHECK DAM

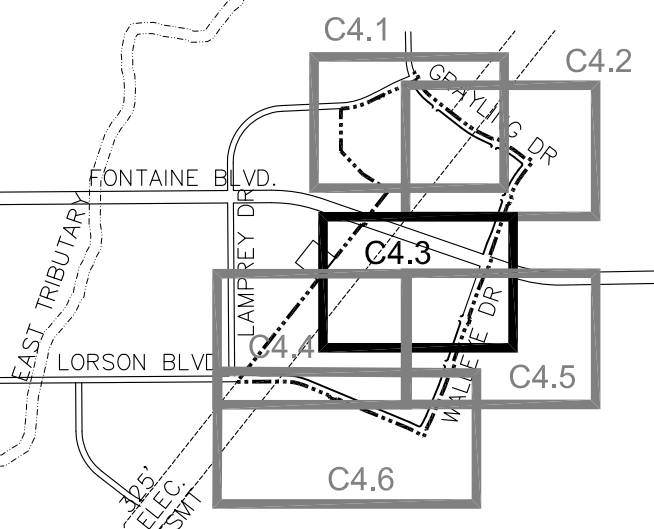
TEMP CHECK DAM

TEMP CHECK DAM

TEMP CHECK DAM

TEMP CHECK DAM

Label pond as existing?



SEE SHEET C4.4

SEE SHEET C4.5

- NOTE:**
- SLOPES SHALL BE 3:1 UNLESS OTHERWISE NOTED
 - POND SLOPES SHALL BE 3:1
 - STRAW ECB SHALL BE PLACED ON ALL POND SIDE SLOPES AND PERMANENT SLOPES 6:1 OR STEEPER.
 - TEMPORARY SEEDING REQUIRED ON DISTURBED AREAS AND STOCKPILES WHICH ARE NOT AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 30 DAYS SHALL ALSO BE MULCHED AND SEEDED WITHIN 21 DAYS AFTER INTERIM GRADING.
 - THERE ARE NO ASPHALT BATCH PLANTS OR CONSTRUCTION OFFICE TRAILERS PLANNED FOR THIS SITE OR CONTRACTOR SHALL OBTAIN PERMIT IF DESIRED.
 - CONTRACTOR TO DETERMINE STOCKPILE AREAS AND STAGING AREAS AND SHOW THEM ON THE WORKING MAPS.
 - EXISTING VEGETATION CONSISTS OF GRASSES AND WEEDS. GROUND COVER ESTIMATED AT 70% DENSITY AND IS REQUIRED TO BE FIELD VERIFIED PRIOR TO CONSTRUCTION
 - THERE ARE NO STREAMS OR WETLANDS WITHIN THE LIMITS OF CONSTRUCTION

- INITIAL BMP'S:**
- PERIMETER SILT FENCE
 - VEHICLE TRACKING CONTROL PADS
 - INLET PROTECTION FOR EXISTING POND OUTFALLS
 - INLET PROTECTION FOR EXISTING INLETS
 - PLACEMENT OF ON-SITE SWMP MANUAL
- INTERIM BMP'S:**
- TEMPORARY SEDIMENT BASINS AS GRADING PROGRESSES
 - TEMPORARY SEEDING/MULCHING AS NEEDED
 - STRAW BALE CHECKS AS NEEDED DURING GRADING
- FINAL BMP'S:**
- FINAL SEEDING AND MULCHING
 - STRAW ECB ON PERMANENT SLOPES 6:1 OR STEEPER.
 - POND OUTLET STRUCTURES



Show and label emergency spillway for Pond C1, as mentioned on FDR page 43 of 227.
 Typical for all ponds.
 Size per UD-Detention spreadsheet.

CORE ENGINEERING GROUP	
1500 S. 151st AVENUE, SUITE 50506 BOULDER, CO 80501 PH: 719.570.1100 CONTACT: RICHARD L. SCHINDLER, P.E. EMAIL: Rich@ceg.com	
DATE	JAN 12, 2021
DESCRIPTION	RAISE SITE 1' EAST OF POWERLINES
NO.	1.
PROJECT FOR:	THE HILLS AT LORSON RANCH
PREPARED FOR:	LORSON, LLC 212 N. WAHSATCH AVE, SUITE 301 COLORADO SPRINGS, COLORADO 80903 FONTAINE BLVD. - WALLEYE DR COLORADO SPRINGS, COLORADO (719) 635-3200 CONTACT: JEFF MARK
DRAWN:	RLS
DESIGNED:	RLS
CHECKED:	RLS
THE HILLS AT LORSON RANCH FINAL GRADING AND EROSION CONTROL PLAN	
DATE:	JAN 18, 2021
PROJECT NO.	100.062
SHEET NUMBER	C4.4
TOTAL SHEETS:	16

NOTE:

1. SLOPES SHALL BE 3:1 UNLESS OTHERWISE NOTED
2. POND SLOPES SHALL BE 3:1
3. STRAW ECB SHALL BE PLACED ON ALL POND SIDE SLOPES AND PERMANENT SLOPES 6:1 OR STEEPER.
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8. THERE ARE NO STREAMS OR WETLANDS WITHIN THE LIMITS OF CONSTRUCTION

INITIAL BMP'S:

1. PERIMETER SILT FENCE
2. VEHICLE TRACKING CONTROL PADS
3. INLET PROTECTION FOR EXISTING POND OUTFALLS
4. INLET PROTECTION FOR EXISTING INLETS
4. PLACEMENT OF ON-SITE SWMP MANUAL

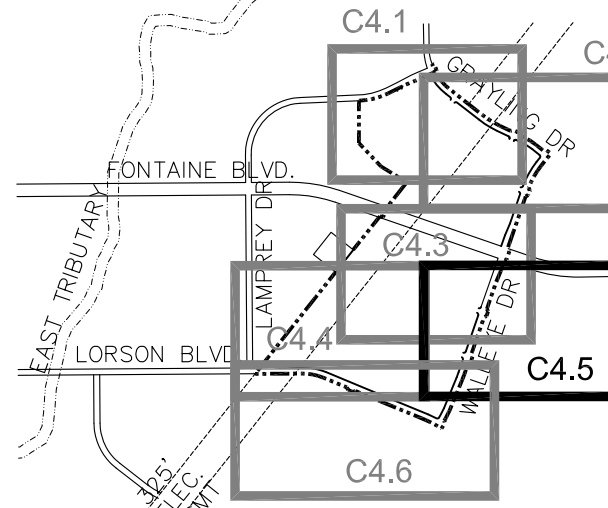
INTERIM BMP'S:

1. TEMPORARY SEDIMENT BASINS AS GRADING PROGRESSES
2. TEMPORARY SEEDING/MULCHING AS NEEDED
3. STRAW BALE CHECKS AS NEEDED DURING GRADING

FINAL BMP'S:

1. FINAL SEEDING AND MULCHING
2. STRAW ECB ON PERMANENT SLOPES 6:1 OR STEEPER.
3. POND OUTLET STRUCTURES

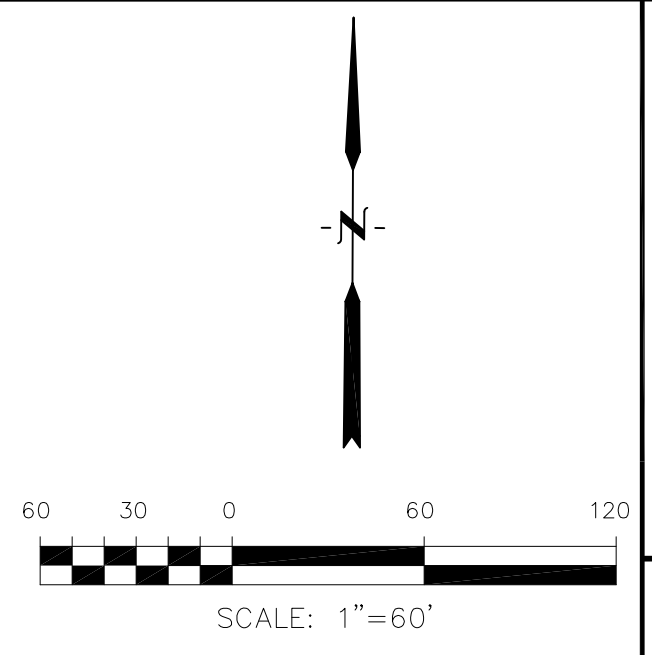
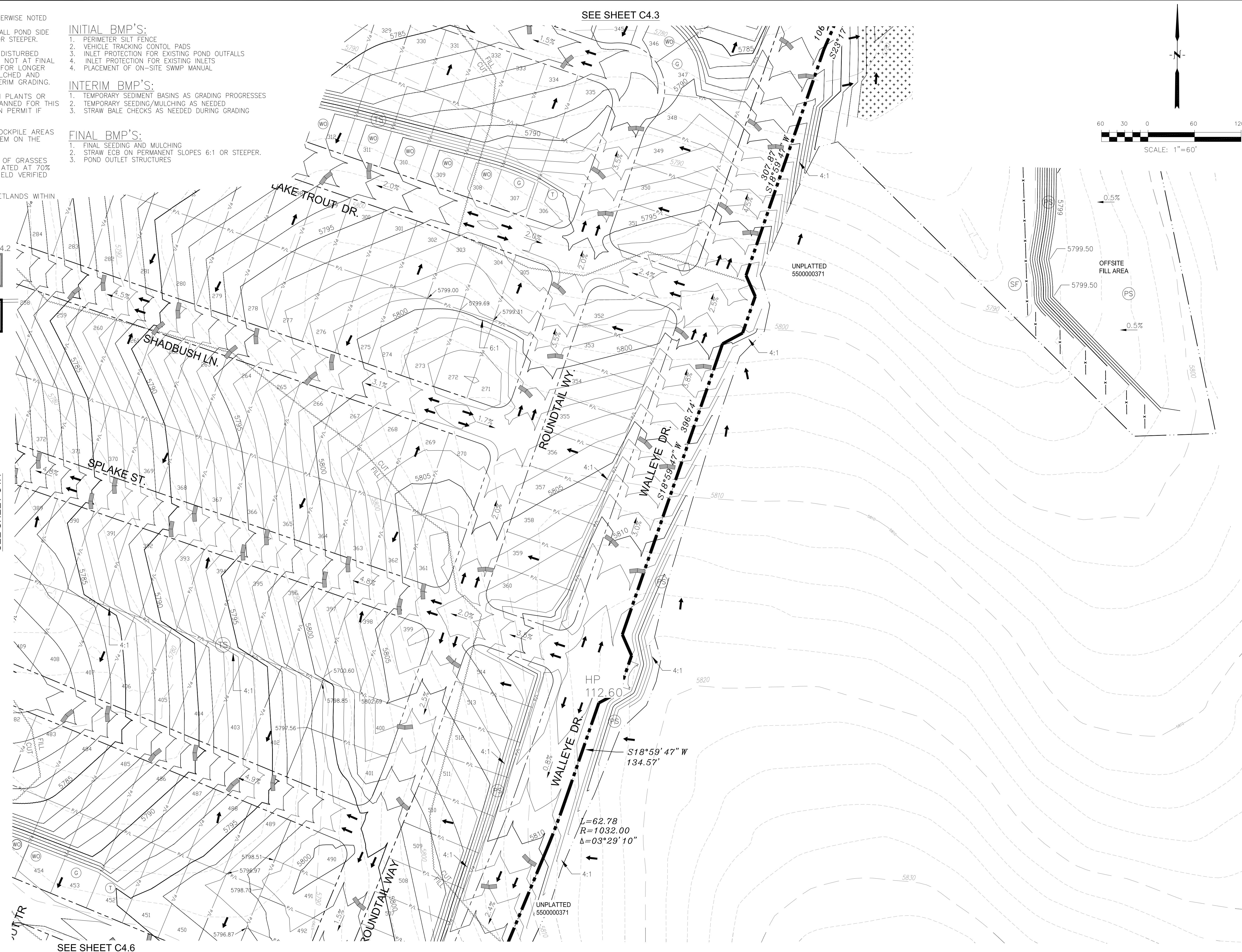
SEE SHEET C4.3



KEY MAP
NO SCALE

SEE SHEET C4.4

SEE SHEET C4.6



CORE ENGINEERING GROUP	
1500 S. L. AVENUE, SUITE 100 DENVER, CO 80202 PHONE: 719.570.1100 CONTACT: RICHARD L. SCHINDLER, P.E. EMAIL: Rich@ceg.com	
DATE	JAN 12, 2021
DESCRIPTION	RAISE SITE 1' EAST OF POWERLINES
PROJECT	THE HILLS AT LORSON RANCH
PREPARED FOR:	LORSON, LLC 212 N. WAHSATCH AVE, SUITE 301 COLORADO SPRINGS, COLORADO 80903 (719) 635-3200 CONTACT: JEFF MARK
DRAWN:	RLS
DESIGNED:	RLS
CHECKED:	RLS
THE HILLS AT LORSON RANCH FINAL GRADING AND EROSION CONTROL PLAN	
DATE:	JAN 18, 2021
PROJECT NO.	100.062
SHEET NUMBER	C4.5
TOTAL SHEETS:	16

NOTE:

1. SLOPES SHALL BE 3:1 UNLESS OTHERWISE NOTED
2. POND SLOPES SHALL BE 3:1
3. STRAW ECB SHALL BE PLACED ON ALL POND SIDE SLOPES AND PERMANENT SLOPES 6:1 OR STEEPER.
4. TEMPORARY SEEDING REQUIRED ON DISTURBED AREAS AND STOCKPILES WHICH ARE NOT AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 30 DAYS SHALL ALSO BE MULCHED AND SEEDED WITHIN 21 DAYS AFTER INTERIM GRADING.
5. THERE ARE NO ASPHALT BATCH PLANTS OR CONSTRUCTION OFFICE TRAILERS PLANNED FOR THIS SITE OR CONTRACTOR SHALL OBTAIN PERMIT IF DESIRED.
6. CONTRACTOR TO DETERMINE STOCKPILE AREAS AND STAGING AREAS AND SHOW THEM ON THE WORKING MAPS.
7. EXISTING VEGETATION CONSISTS OF GRASSES AND WEEDS. GROUND COVER ESTIMATED AT 70% DENSITY AND IS REQUIRED TO BE FIELD VERIFIED PRIOR TO CONSTRUCTION
8. THERE ARE NO STREAMS OR WETLANDS WITHIN THE LIMITS OF CONSTRUCTION

INITIAL BMP'S:

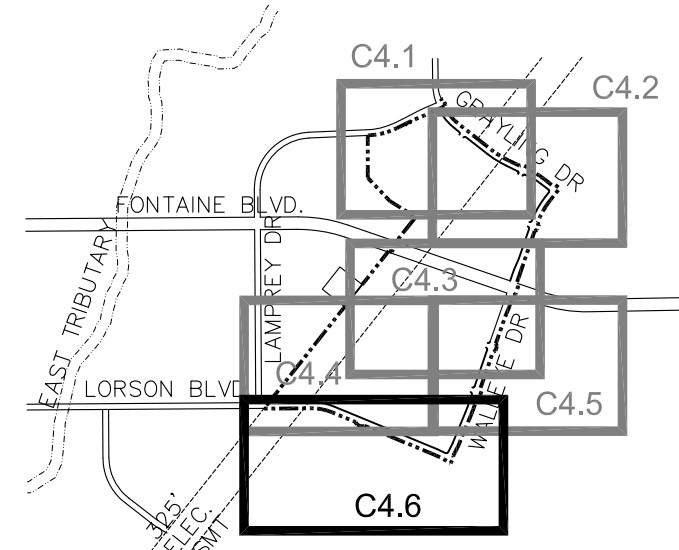
1. PERIMETER SILT FENCE
2. VEHICLE TRACKING CONTROL PADS
3. INLET PROTECTION FOR EXISTING POND OUTFALLS
4. INLET PROTECTION FOR EXISTING INLETS
4. PLACEMENT OF ON-SITE SWMP MANUAL

INTERIM BMP'S:

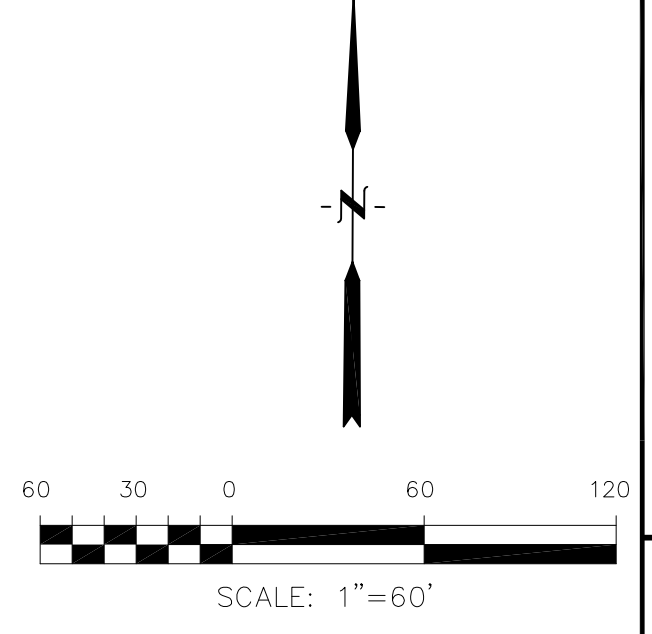
1. TEMPORARY SEDIMENT BASINS AS GRADING PROGRESSES
2. TEMPORARY SEEDING/MULCHING AS NEEDED
3. STRAW BALE CHECKS AS NEEDED DURING GRADING

FINAL BMP'S:

1. FINAL SEEDING AND MULCHING
2. STRAW ECB ON PERMANENT SLOPES 6:1 OR STEEPER.
3. POND OUTLET STRUCTURES



KEY MAP
NO SCALE



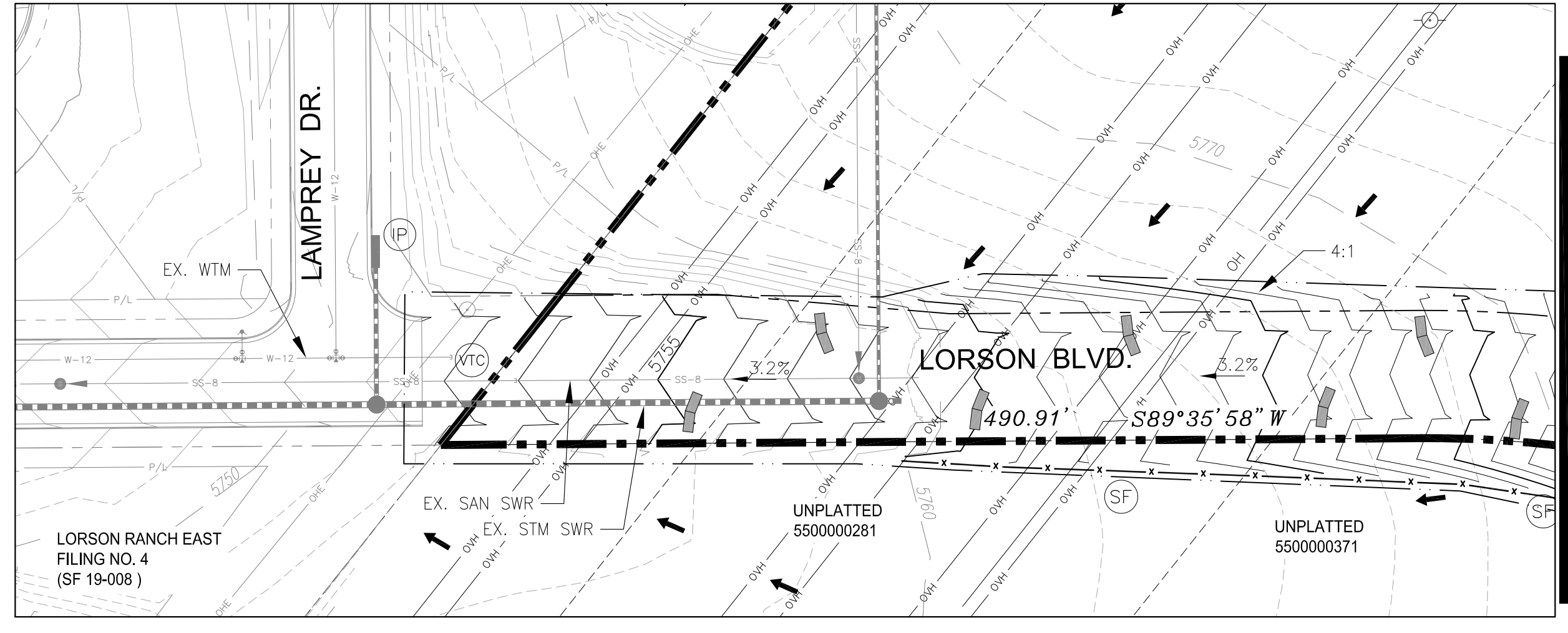
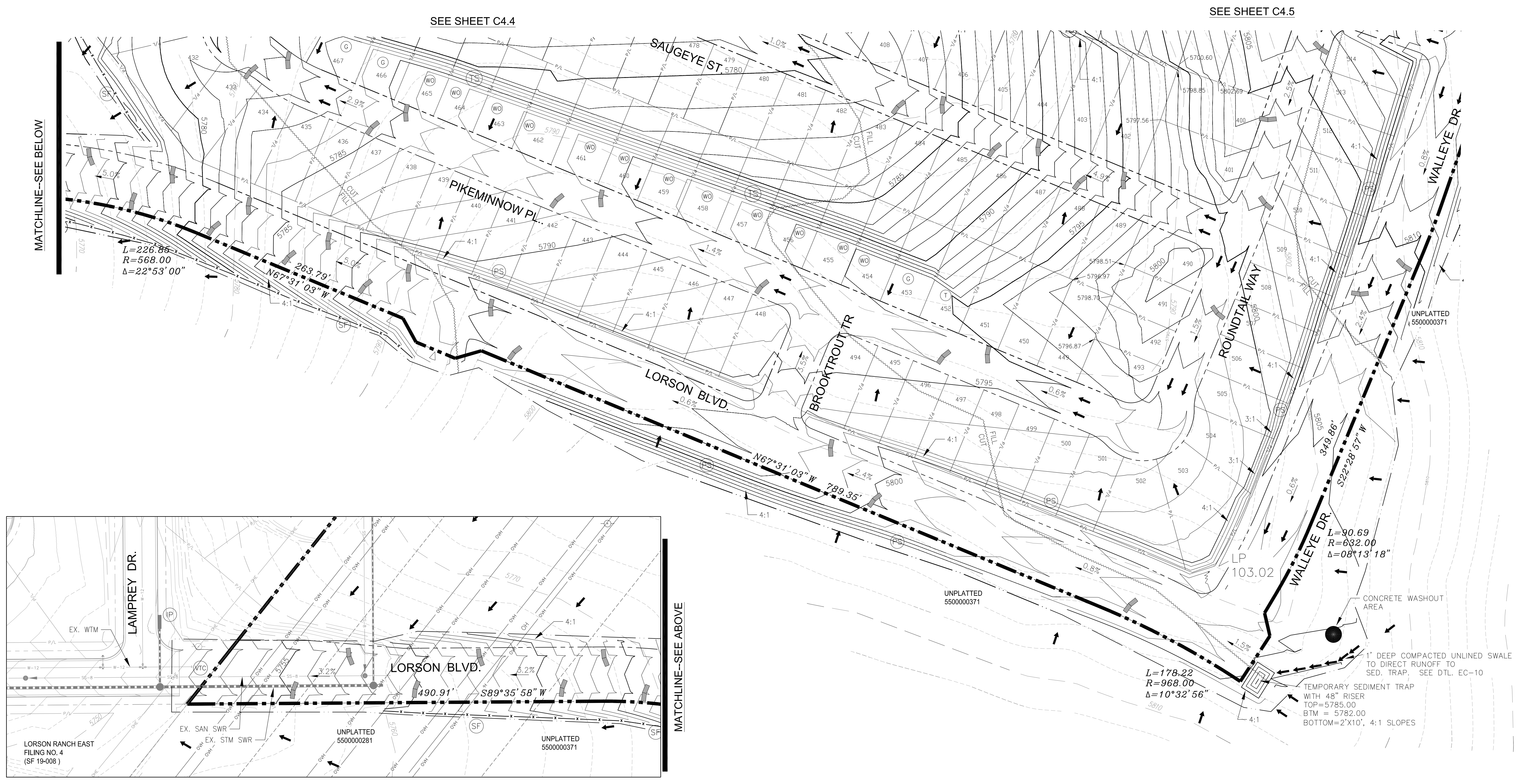
CORE ENGINEERING GROUP
 1500 S. 151ST AVENUE, SUITE 300
 COLORADO SPRINGS, CO 80903
 PH: 719.570.1100
 CONTACT: RICHARD L. SCHINDLER, P.E.
 EMAIL: Rich@ceg.com

DATE: JAN 12, 2021
 NO. 1: RAISE SITE 1' EAST OF POWERLINES
 DESCRIPTION: THE HILLS AT LORSON RANCH RANCH EROSION CONTROL PLAN
 PREPARED FOR: LORSON, LLC
 212 N. WAHSATCH AVE, SUITE 301
 COLORADO SPRINGS, COLORADO 80903
 (719) 635-3200
 CONTACT: JEFF MARK

DRAWN: RLS
 DESIGNED: RLS
 CHECKED: RLS

PROJECT NO. 100.062
 SHEET NUMBER C4.6
 TOTAL SHEETS: 16

**THE HILLS AT LORSON RANCH
 FINAL GRADING AND
 EROSION CONTROL PLAN**



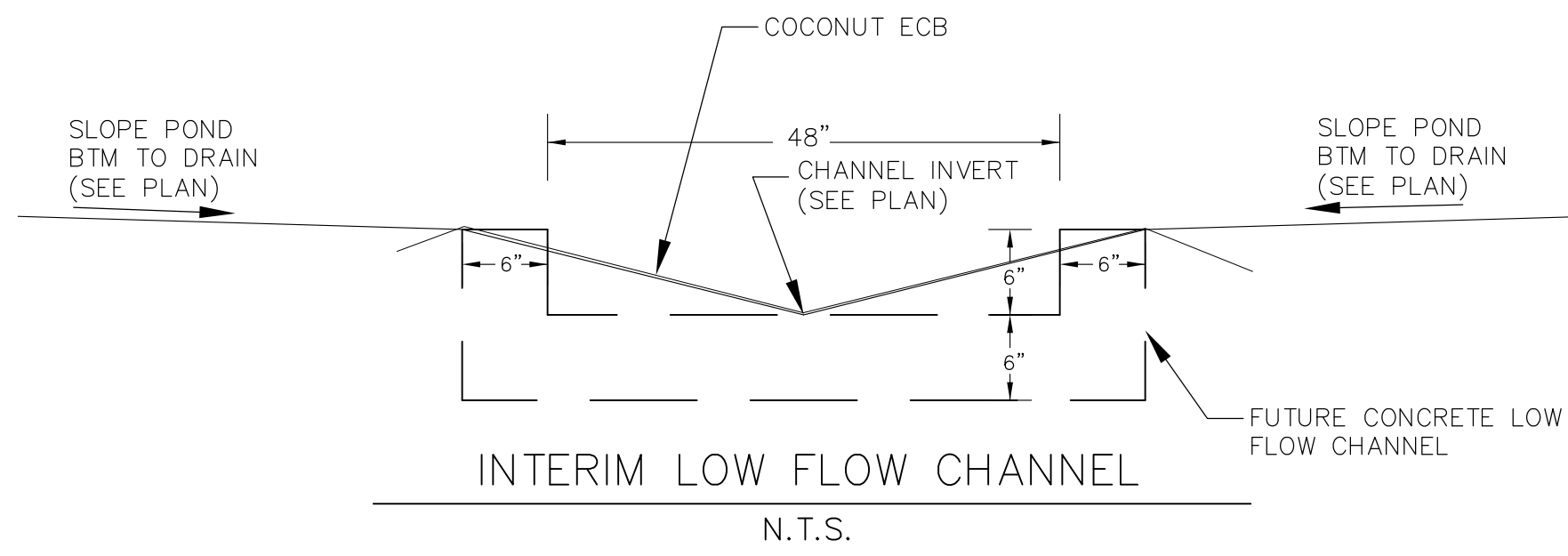
DATE: JAN 18, 2021

PROJECT NO. 100.062

SHEET NUMBER C4.6

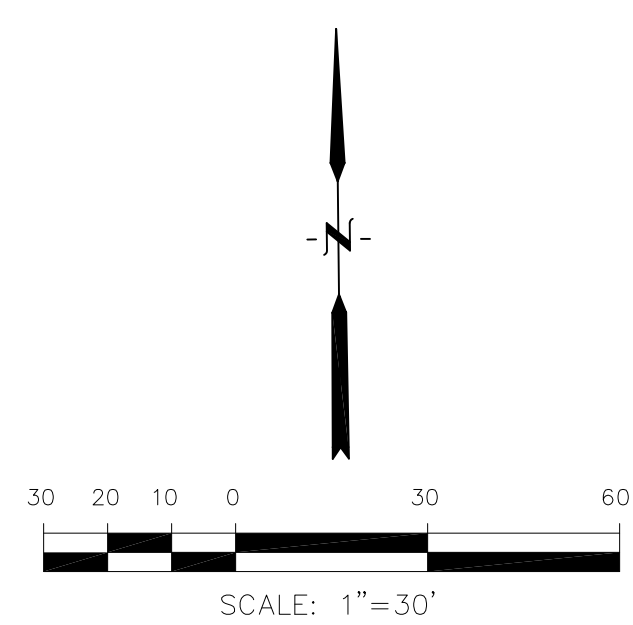
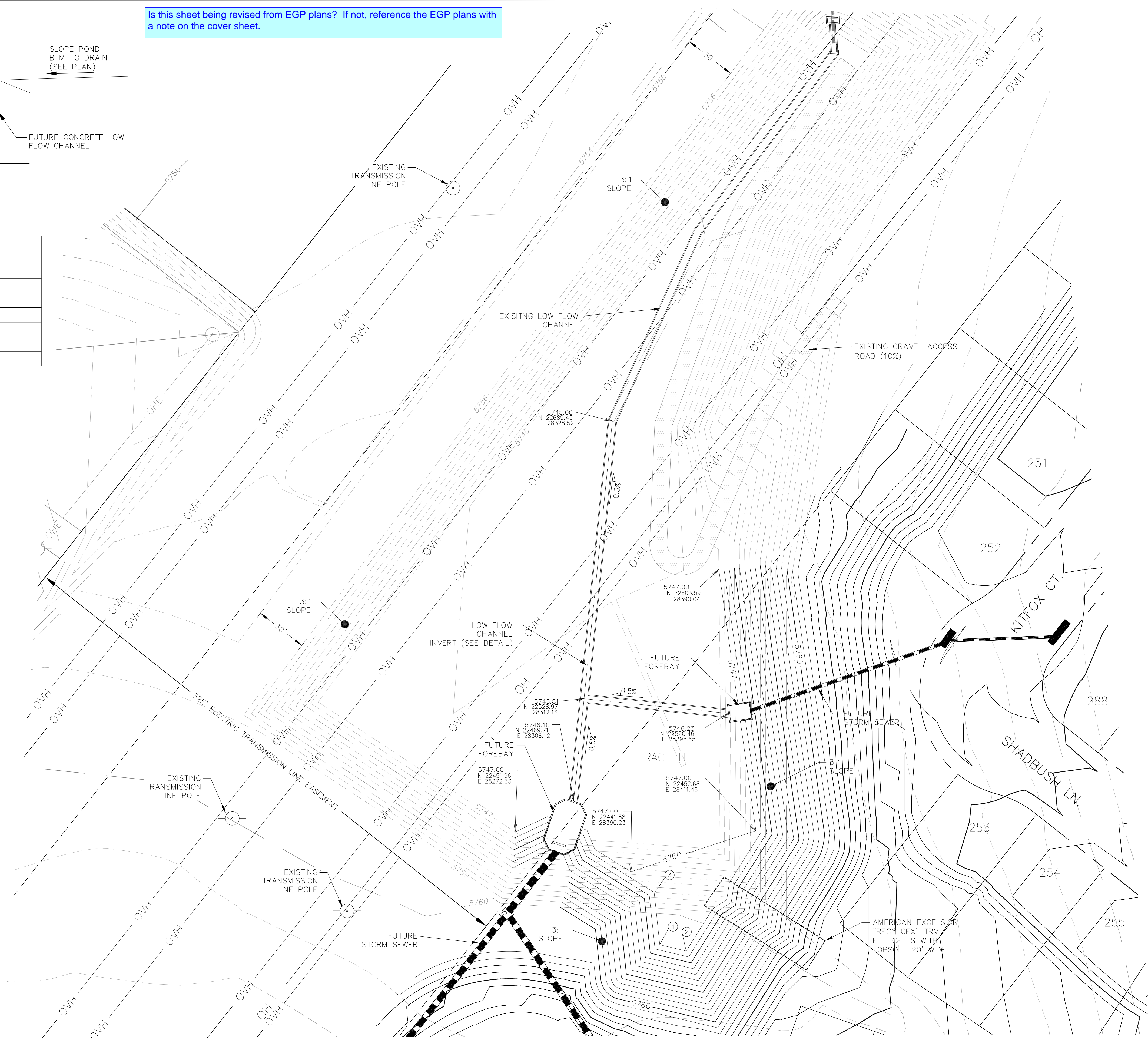
TOTAL SHEETS: 16

Is this sheet being revised from EGP plans? If not, reference the EGP plans with a note on the cover sheet.



POINT TABLE				
NUMBER	NORTHING	EASTING	ELEVATION	NOTES
1	22386.81	28355.91	5748.00	POND BOTTOM
2	22383.19	28371.19	5748.00	POND BOTTOM
3	22417.49	28353.46	5747.73	POND BOTTOM

NOTE:
 1. POND SLOPES SHALL BE 3:1 UNLESS OTHERWISE NOTED
 2. STRAW ECB SHALL BE PLACED ON ALL POND SIDE SLOPES UNLESS NOTED OTHERWISE



CORE
ENGINEERING GROUP
 15004 1ST AVENUE S.
 PHOENIX, AZ 85006
 CONTACT: RICHARD L. SCHINDLER, P.E.
 EMAIL: Rich@eg1.com

DATE: _____
 DESCRIPTION: _____
 NO: _____
 PREPARED FOR:
LORSON, LLC
 212 N. WAHSATCH AVE, SUITE 301
 COLORADO SPRINGS, COLORADO 80903
 CONTACT: JEFF MARK

DRAWN: RLS
 DESIGNED: RLS
 CHECKED: RLS

THE HILLS AT LORSON RANCH
 FONTAINE BLVD. - WALLEYE DR
 COLORADO SPRINGS, COLORADO

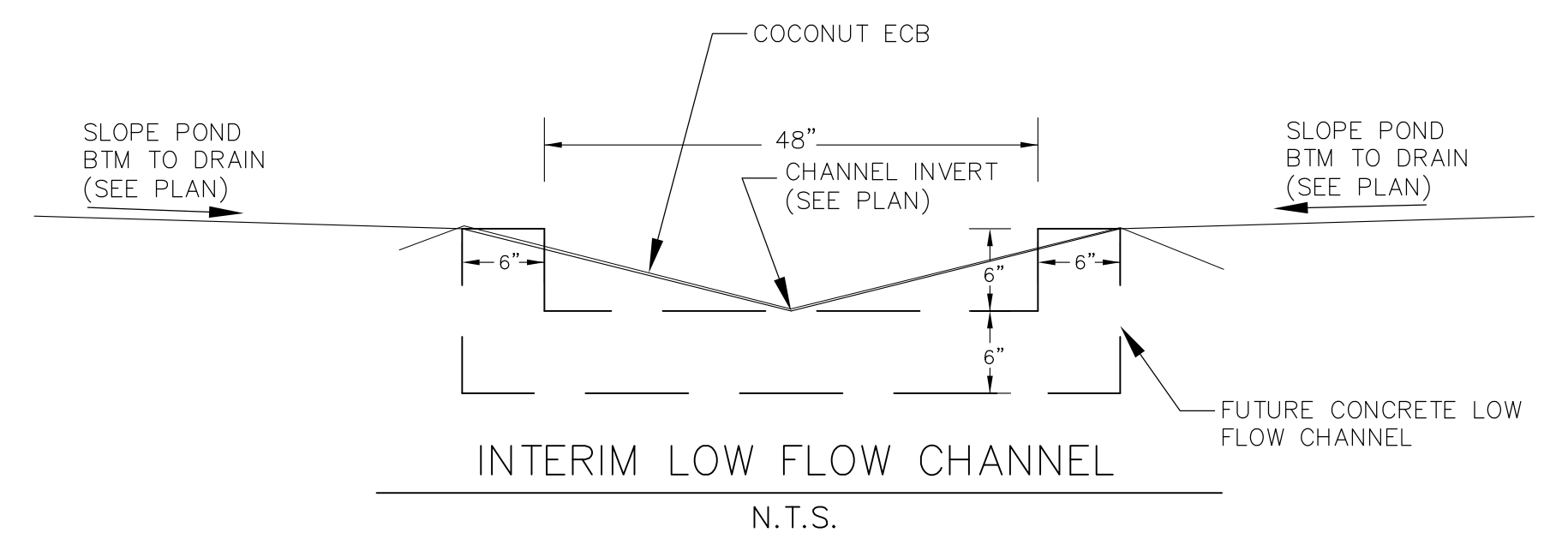
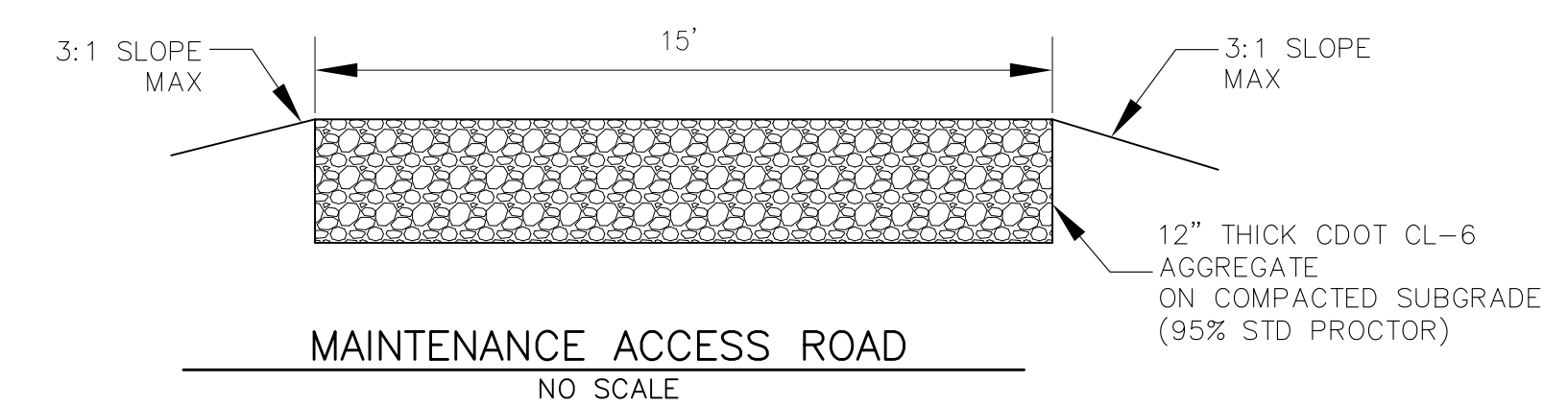
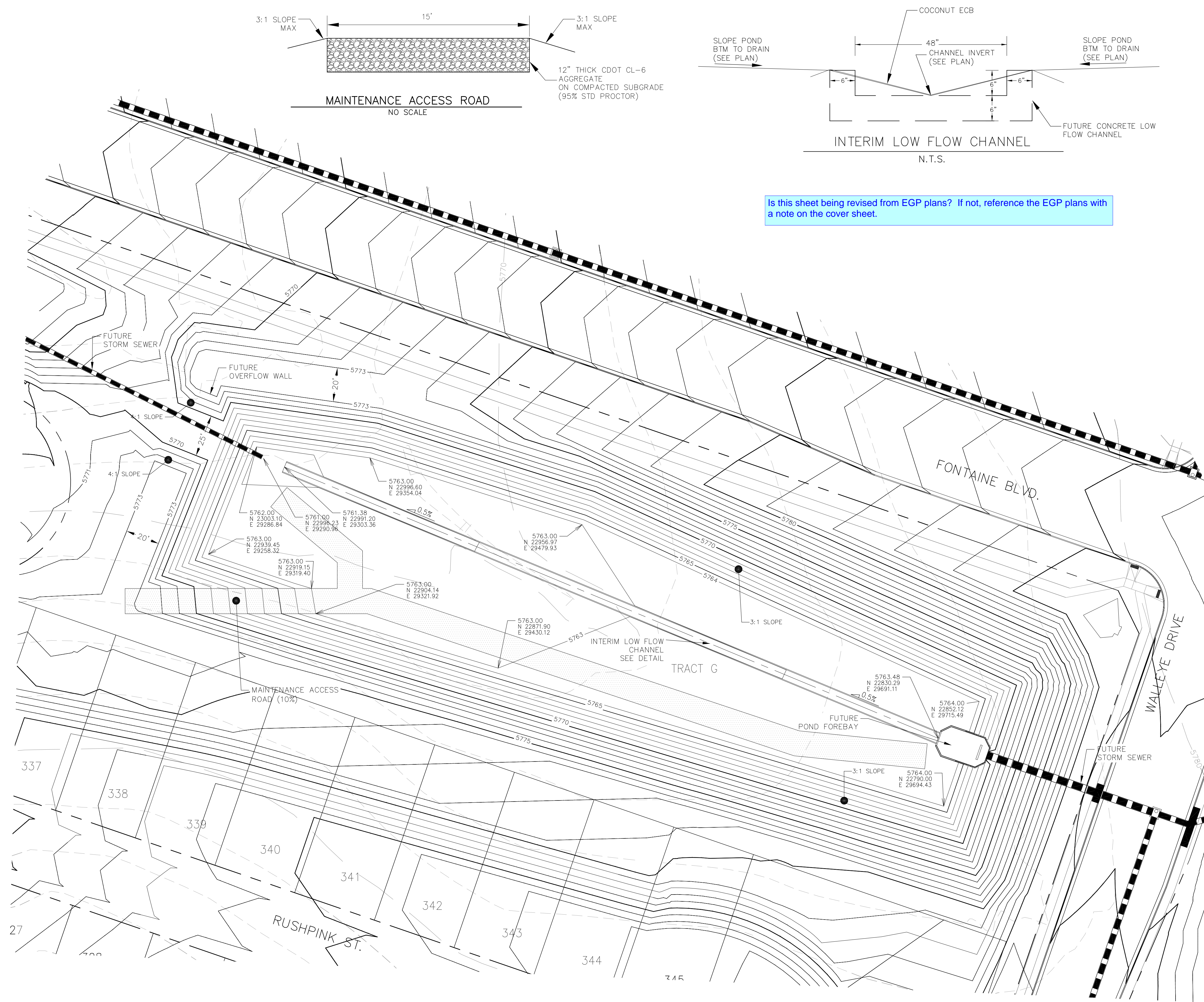
**EXISTING POND C1 EXPANSION
 POND GRADING AND
 TRICKLE CHANNEL**

DATE:
 JAN 18, 2021

PROJECT NO.
 100.062

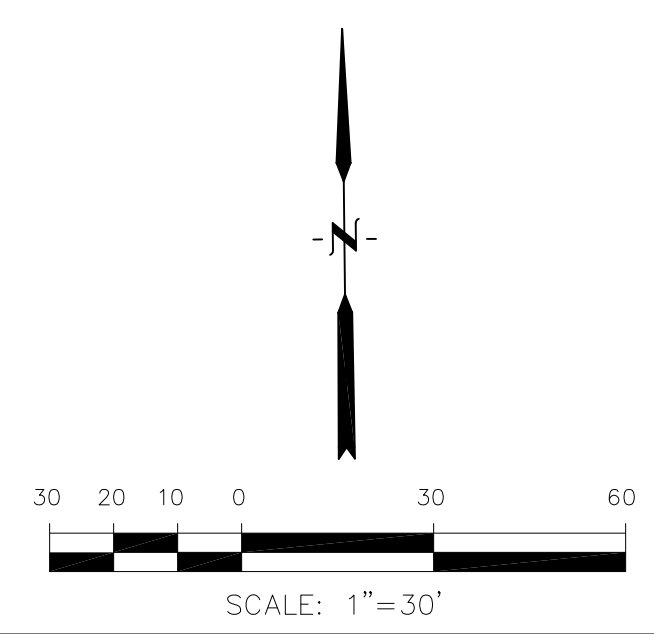
SHEET NUMBER
C5.1

TOTAL SHEETS: 16

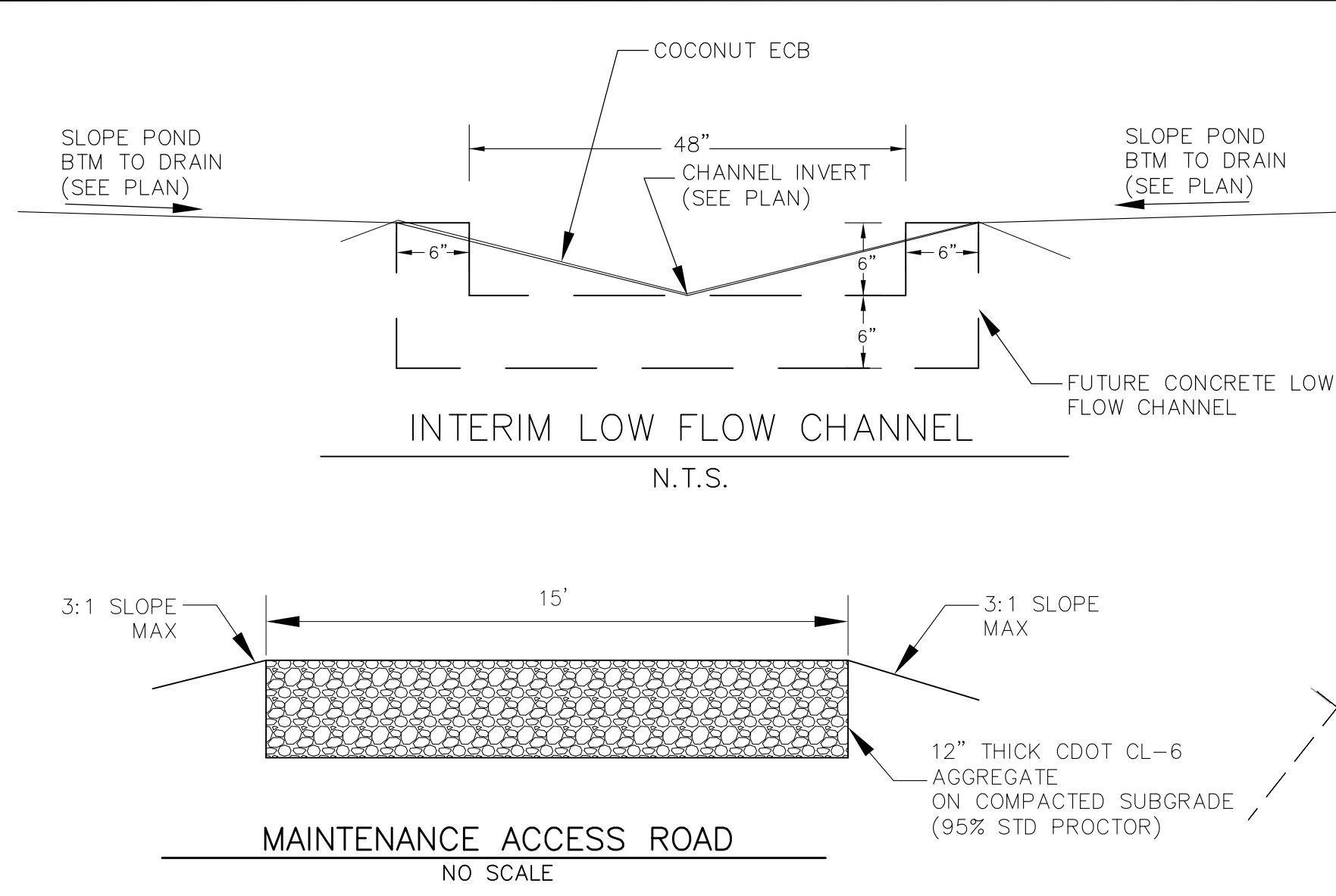
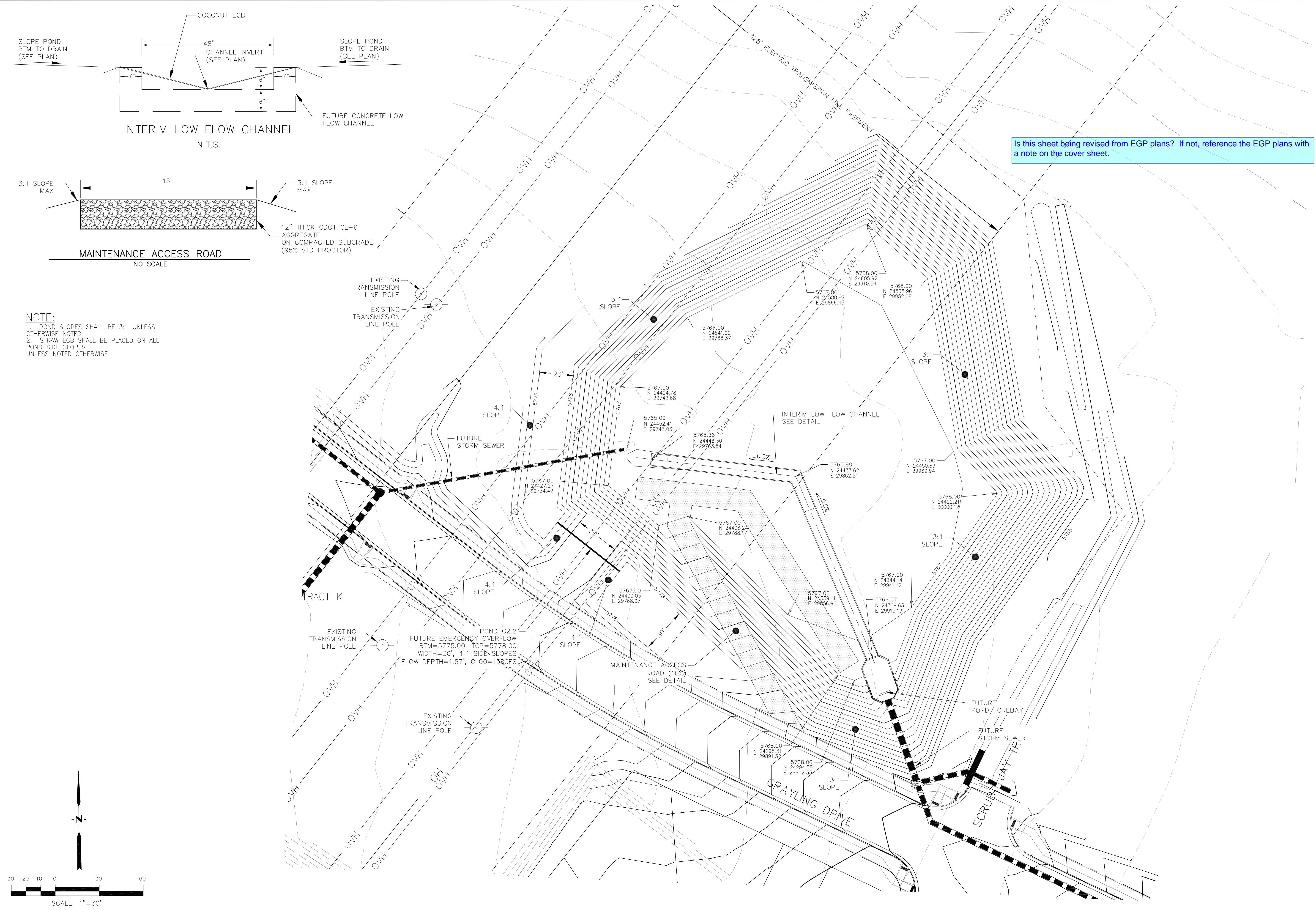


Is this sheet being revised from EGP plans? If not, reference the EGP plans with a note on the cover sheet.

NOTE:
1. POND SLOPES SHALL BE 3:1 UNLESS OTHERWISE NOTED
2. STRAW ECB SHALL BE PLACED ON ALL POND SIDE SLOPES UNLESS NOTED OTHERWISE

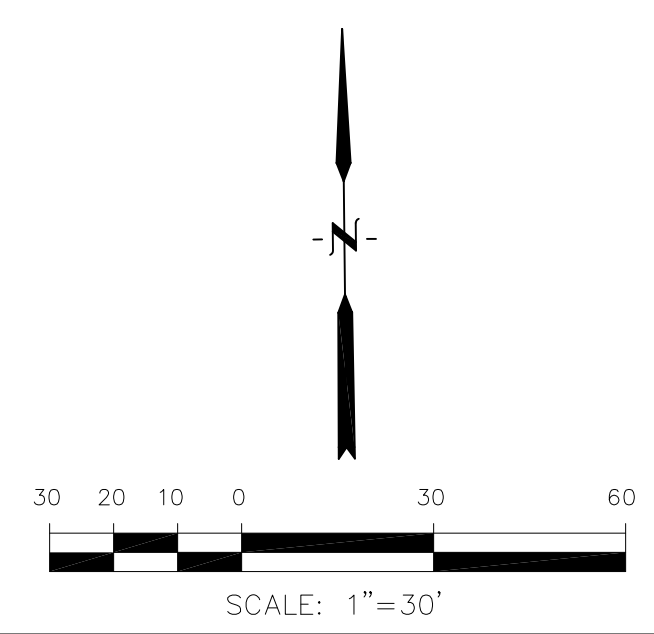


CORE ENGINEERING GROUP	
15004 1ST AVENUE S. DENVER, CO 80202 PH: 719.570.1100 CONTACT: RICHARD L. SCHINDLER, P.E. EMAIL: Rich@ceg1.com	
DATE:	JAN 12, 2021
DESCRIPTION:	
NO.:	1. RAISE SITE 1' EAST OF POWERLINES
PROJECT:	THE HILLS AT LORSON RANCH
PREPARED FOR:	LORSON, LLC 212 N. WAHSATCH AVE, SUITE 301 COLORADO SPRINGS, COLORADO 80903 (719) 635-3200 CONTACT: JEFF MARK
DRAWN:	RLS
DESIGNED:	RLS
CHECKED:	RLS
POND C2.1 POND GRADING AND TRICKLE CHANNEL	
DATE:	JAN 18, 2021
PROJECT NO.:	100.062
SHEET NUMBER:	C5.2
TOTAL SHEETS:	16



NOTE:
 1. POND SLOPES SHALL BE 3:1 UNLESS OTHERWISE NOTED
 2. STRAW ECB SHALL BE PLACED ON ALL POND SIDE SLOPES UNLESS NOTED OTHERWISE

Is this sheet being revised from EGP plans? If not, reference the EGP plans with a note on the cover sheet.



CORE
ENGINEERING GROUP
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 BLDG 100, SUITE 5506
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 CONTACT: RICHARD L. SCHINDLER, P.E.
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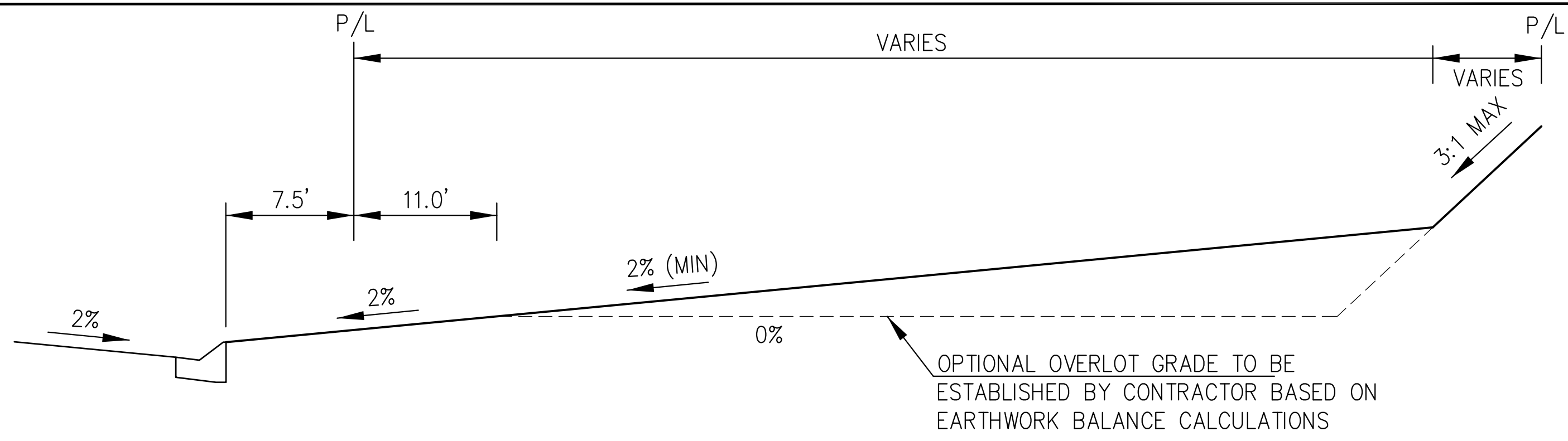
DATE: JAN 12, 2021
 DESCRIPTION: RAISE SITE 1' EAST OF POWERLINES
 NO. 1
 PREPARED FOR: LORSON, LLC
 212 N. WAHSATCH AVE, SUITE 301
 COLORADO SPRINGS, COLORADO 80903
 CONTACT: (719) 635-3200
 CONTACT: JEFF MARK

PROJECT: THE HILLS AT LORSON RANCH
 FONTAINE BLVD. - WALLEYE DR
 COLORADO SPRINGS, COLORADO

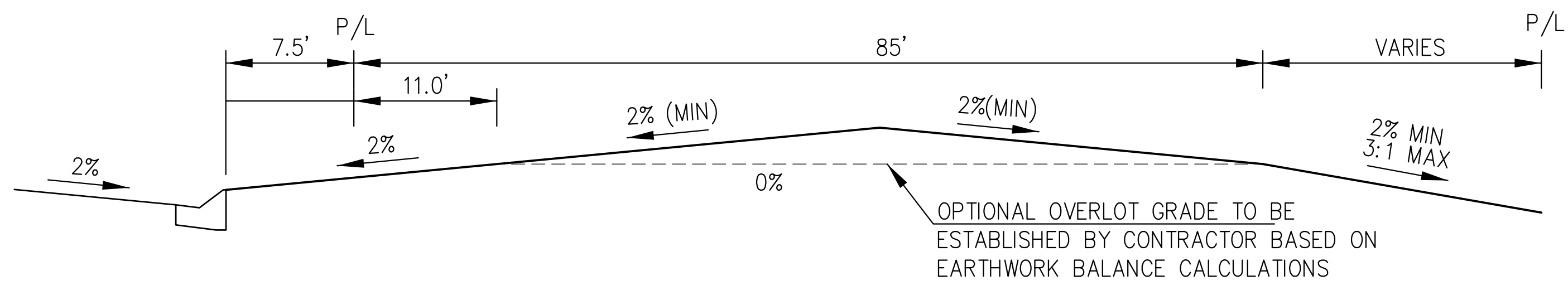
DRAWN: RLS
 DESIGNED: RLS
 CHECKED: RLS

POND C4
POND GRADING AND
TRICKLE CHANNEL

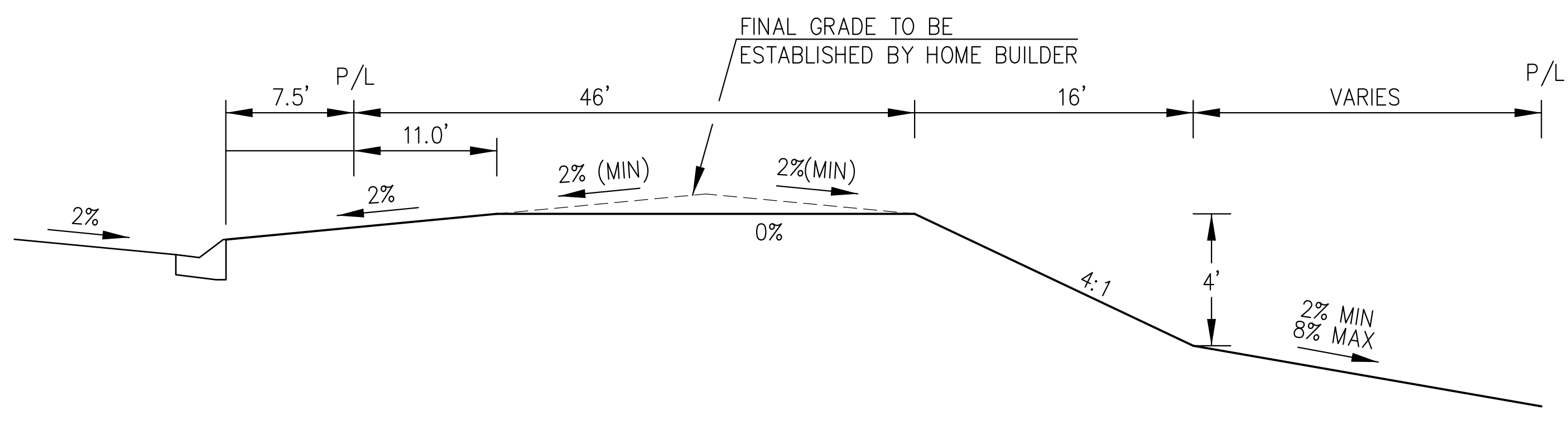
DATE: JAN 18, 2021
 PROJECT NO. 100.062
 SHEET NUMBER C5.4
 TOTAL SHEETS: 16



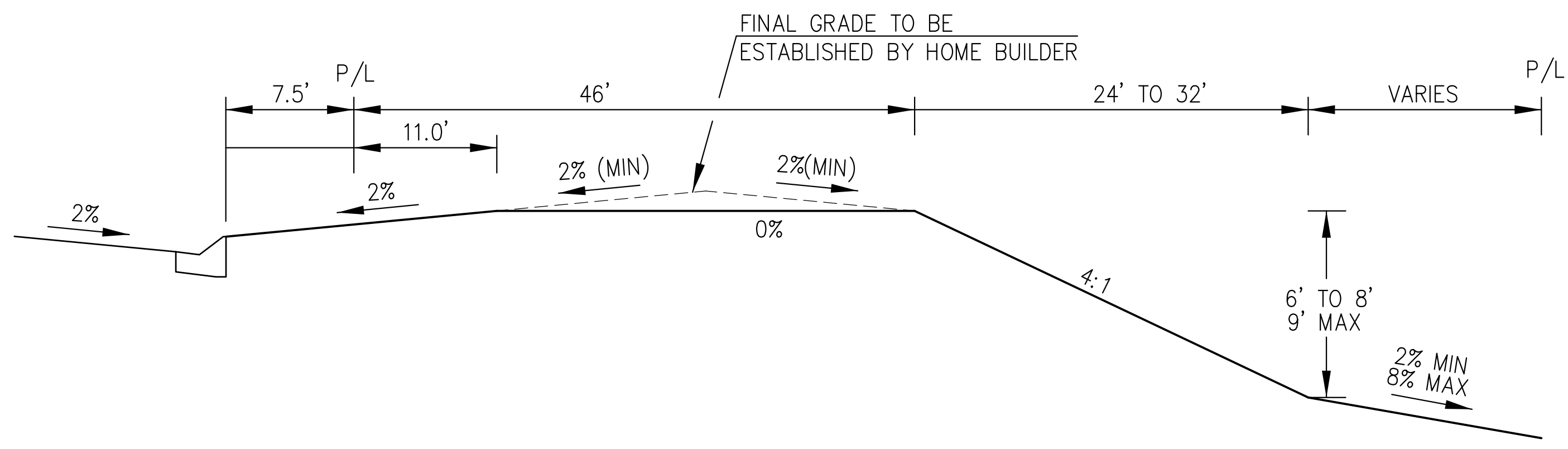
TYPICAL "A" LOT



TYPICAL "B" LOT



TYPICAL "GARDEN" LOT



TYPICAL "WALKOUT" LOT

Sediment Control Log (SCL) SC-2

SEDIMENT CONTROL LOG JOINTS

SCL-1. SEDIMENT CONTROL LOG

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

EC-9 Rough Cut Street Control (RCS)

SECTION A

SECTION B

W (FT)	X (FT)
20-30	5
31-40	7
41-50	9
51-60	10.5
61-70	12

LONGITUDINAL STREET SLOPE (%)	SPACING (FT)
<2	NOT TYPICALLY NEEDED
3	200
4	150
5	100
6	50
7	25
8	25

RCS-2 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

STRAW BALE INLET PROTECTION

STRAW BALE INLET PROTECTION NOTES

INSTALLATION REQUIREMENTS

- INLET PROTECTION SHALL BE INSTALLED IMMEDIATELY AFTER CONSTRUCTION OF INLET.
- BALES ARE TO BE PLACED IN A SINGLE ROW AROUND THE INLET WITH THE END OF THE BALES TIGHTLY ABUTTING ONE ANOTHER.
- SEE STRAW BALE BARRIER FIGURE 58B-2 FOR INSTALLATION REQUIREMENTS.

MAINTENANCE REQUIREMENTS

- CONTRACTOR SHALL INSPECT STRAW BALE INLET PROTECTION IMMEDIATELY AFTER EACH RAINFALL AT LEAST DAILY DURING PROLONGED RAINFALL, AND WEEKLY DURING PERIODS NO RAINFALL.
- DAMAGED OR INEFFECTIVE INLET PROTECTION SHALL PROMPTLY BE REPAIRED, REPLACING BALES IF NECESSARY, AND UNREINFORCED BALES NEED TO BE REPAIRED WITH COMPACTED BACKFILL MATERIAL.
- SEDIMENT SHALL BE REMOVED FROM BEHIND STRAW BALES WHEN IT ACCUMULATES TO APPROXIMATELY 1/3 THE HEIGHT OF THE BARRIER.
- 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 3-26

Concrete Washout Structure

SECTION A-A

NOTES:

- SIGN MATERIAL, EXCAVATION, AND RESTORATION ARE INCLUDED IN THE COST OF THE CONCRETE WASHOUT STRUCTURE.
- EROSION BALES MAY BE USED AS AN ALTERNATIVE FOR THE BERM.

DATE APPROVED: 1/1/08
 DEPARTMENT OF TRANSPORTATION: John A. McCarty
 STANDARD DRAWING: Concrete Washout Structure
 REVISION DATE: 7/17/07
 FILE NAME: SD_3-84

CORE ENGINEERING GROUP
 1500 S. 1ST AVENUE, SUITE 3506
 P.O. BOX 19170, DENVER, CO 80202
 CONTACT: RICHARD L. SCHINDLER, P.E.
 EMAIL: Rich@cegi.com

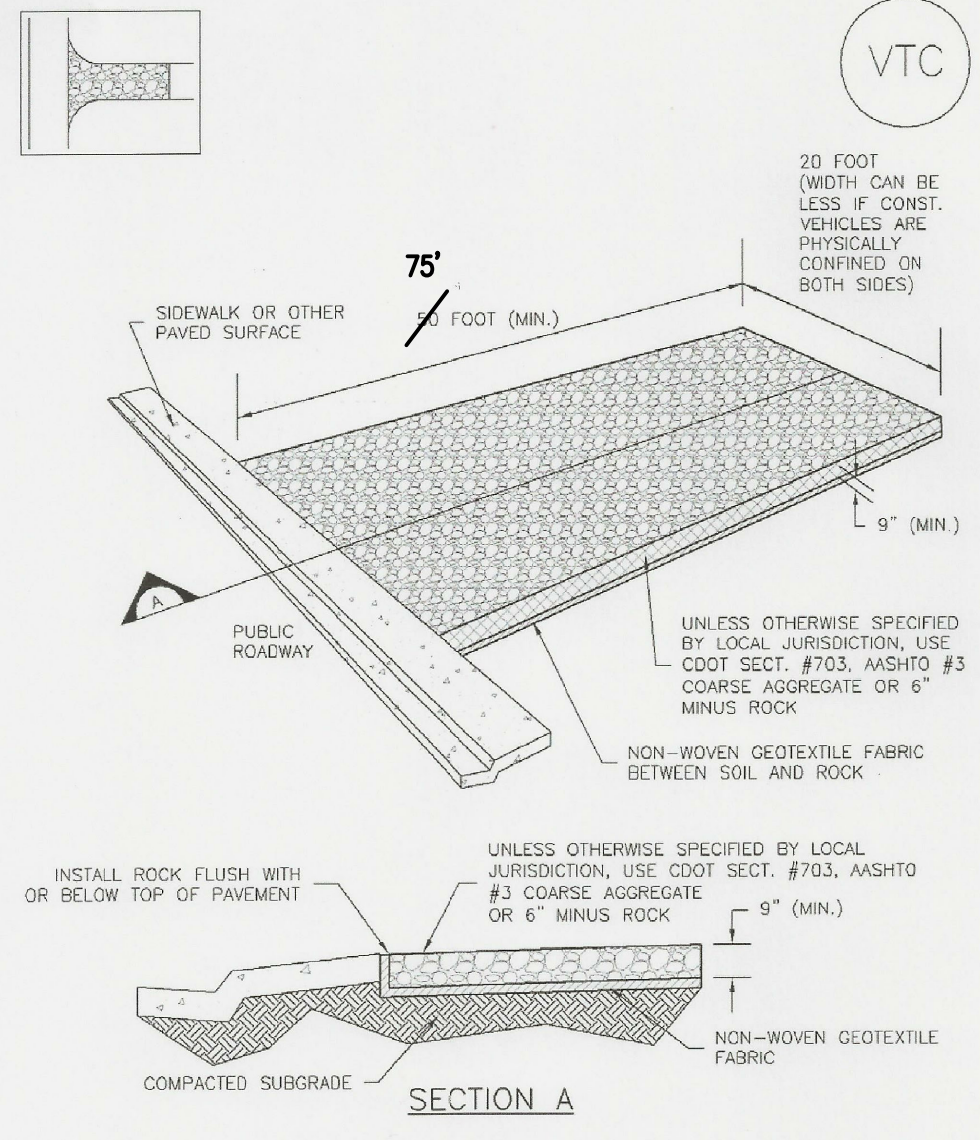
THE HILLS AT LORSON RANCH
 212 N. WAHSATCH AVE, SUITE 301
 COLORADO SPRINGS, COLORADO 80903
 FONTAINE BLDG. - WALLEVE DR
 COLORADO SPRINGS, COLORADO (719) 635-3200
 CONTACT: JEFF MARK

DATE: JAN 18, 2021
 PROJECT NO: 100.062
 SHEET NUMBER: C12.1
 TOTAL SHEETS: 16

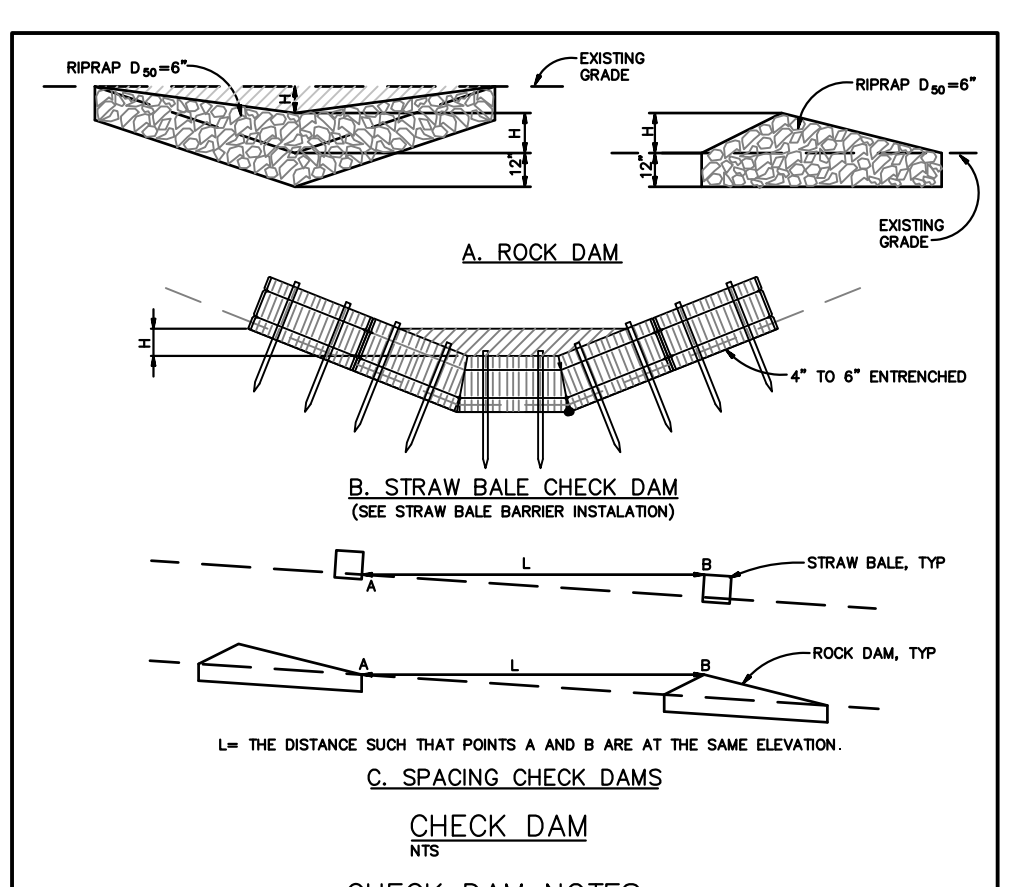
GRADING AND EROSION CONTROL DETAILS

Vehicle Tracking Control (VTC)

SM-4



VTC-1. AGGREGATE VEHICLE TRACKING CONTROL



CHECK DAM NOTES

INSTALLATION REQUIREMENTS

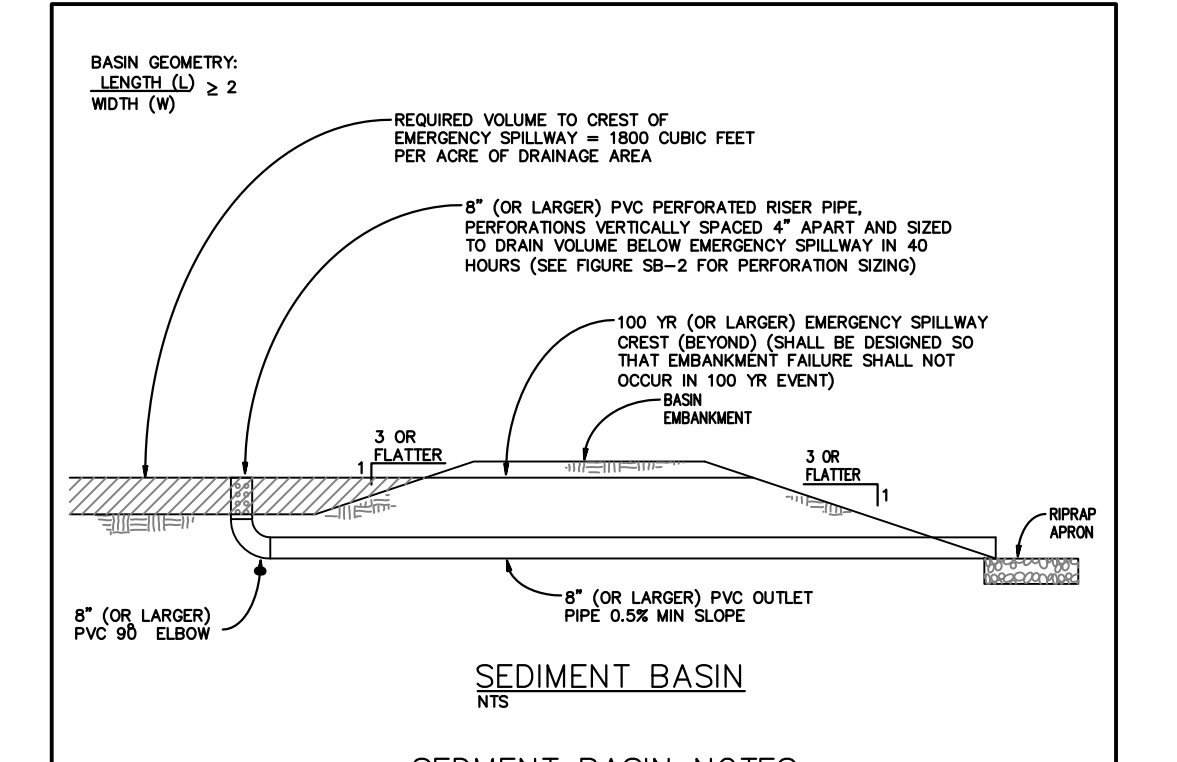
1. STRAW BALES USED AS CHECK DAMS ARE TO MEET THE REQUIREMENTS STATED IN FIGURE SB-2.
2. THE "H" DIMENSION SHALL BE SELECTED TO PROVIDE HIGH FLOW CONVEYANCE FOR 2-YEAR FLOW OR GREATER.
3. ACCUMULATED SEDIMENT AND DEBRIS IS TO BE REMOVED FROM BEHIND THE DAMS AFTER EACH STORM OR WHEN 1/2 OF THE ORIGINAL HEIGHT OF THE DAM IS REACHED.
4. WHEN CHECK DAMS ARE REMOVED THE CHANNEL LINING OR VEGETATION IS TO BE RESTORED.

MAINTENANCE REQUIREMENTS

1. REGULAR INSPECTORS ARE TO BE MADE OF ALL DAMS, ESPECIALLY AFTER STORM EVENTS.
2. REPLACE STONE AS NECESSARY TO MAINTAIN THE CORRECT HEIGHT OF THE DAM.
3. CHECK DAMS ARE TO REMAIN IN PLACE AND OPERATIONAL UNTIL THE DRAINAGE AREA AND CHANNEL ARE PERMANENTLY STABILIZED.

City of Colorado Springs Stormwater Quality

Figure CD-1 Check Dam Construction Detail and Maintenance Requirements



SEDIMENT BASIN NOTES

INSTALLATION REQUIREMENTS

1. SEDIMENT BASINS SHALL BE INSTALLED BEFORE ANY CLEARING AND/OR GRADING IS UNDERTAKEN.
2. THE AREA UNDER WHICH THE EMBANKMENT IS TO BE INSTALLED SHALL BE CLEARED, GRUBBED, AND STRIPPED OF ALL VEGETATION AND ROOT MAT.
3. THE OUTLET OF THE BASIN SHALL BE DESIGNED TO DRAIN ITS VOLUME IN 40 HOURS.
4. THE OUTLET IS TO BE LOCATED AT THE FURTHEST DISTANCE FROM THE INLET OF THE BASIN. BAFFLES MAY BE NEEDED TO INCREASE THE FLOW LENGTH AND SETTLING TIME.
5. EMBANKMENT MATERIAL SHALL CONSIST OF SOIL WITH A MINIMUM OF 1% PASSING A #200 SIEVE. EXCAVATED SOIL CAN BE USED IF IT MEETS THIS REQUIREMENT.
6. EMBANKMENT IS TO BE COMPACTED TO AT LEAST 90% OF MAXIMUM DENSITY AND WITHIN 2% OF OPTIMUM MOISTURE CONTENT ACCORDING TO ASTM D 698.
7. WHEN A BASIN IS INSTALLED NEAR A RESIDENTIAL AREA, FOR SAFETY REASONS, A SIGN SHALL BE POSTED AND THE AREA SECURED WITH A FENCE.

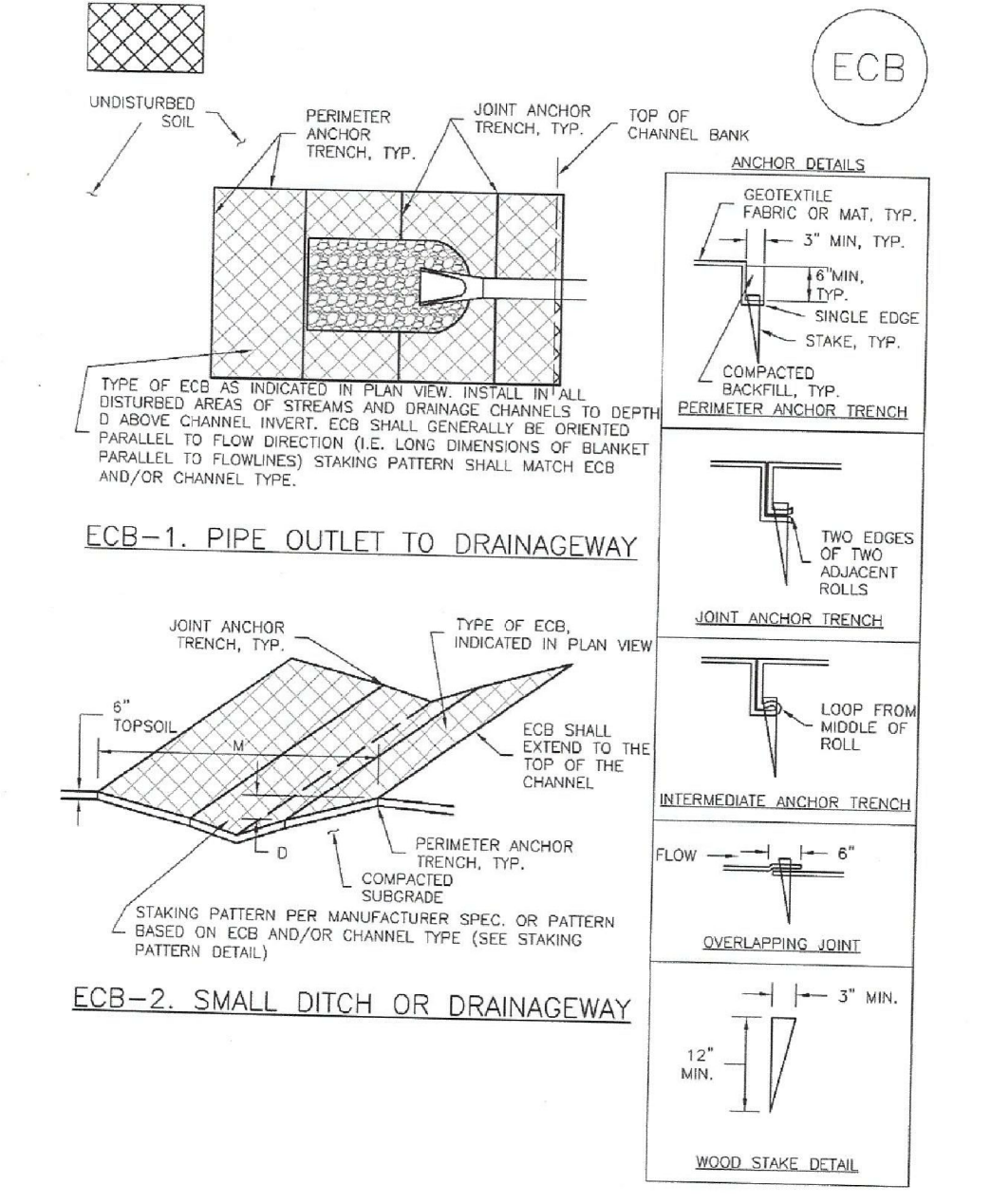
MAINTENANCE REQUIREMENTS

1. CONTRACTOR SHALL INSPECT SEDIMENT BASINS AFTER EACH RAINFALL AT LEAST DAILY DURING PROLONGED RAINFALL AND WEEKLY DURING PERIODS OF NO RAINFALL.
2. SEDIMENT BASINS SHALL BE CLEANED OUT BEFORE SEDIMENT HAS FILLED HALF THE VOLUME OF THE BASIN.
3. SEDIMENT BASINS SHALL REMAIN OPERATIONAL AND PROPERLY MAINTAINED UNTIL THE SITE AREA IS PERMANENTLY STABILIZED WITH ADEQUATE VEGETATIVE COVER AND/OR OTHER PERMANENT STRUCTURE AS APPROVED BY THE CITY.

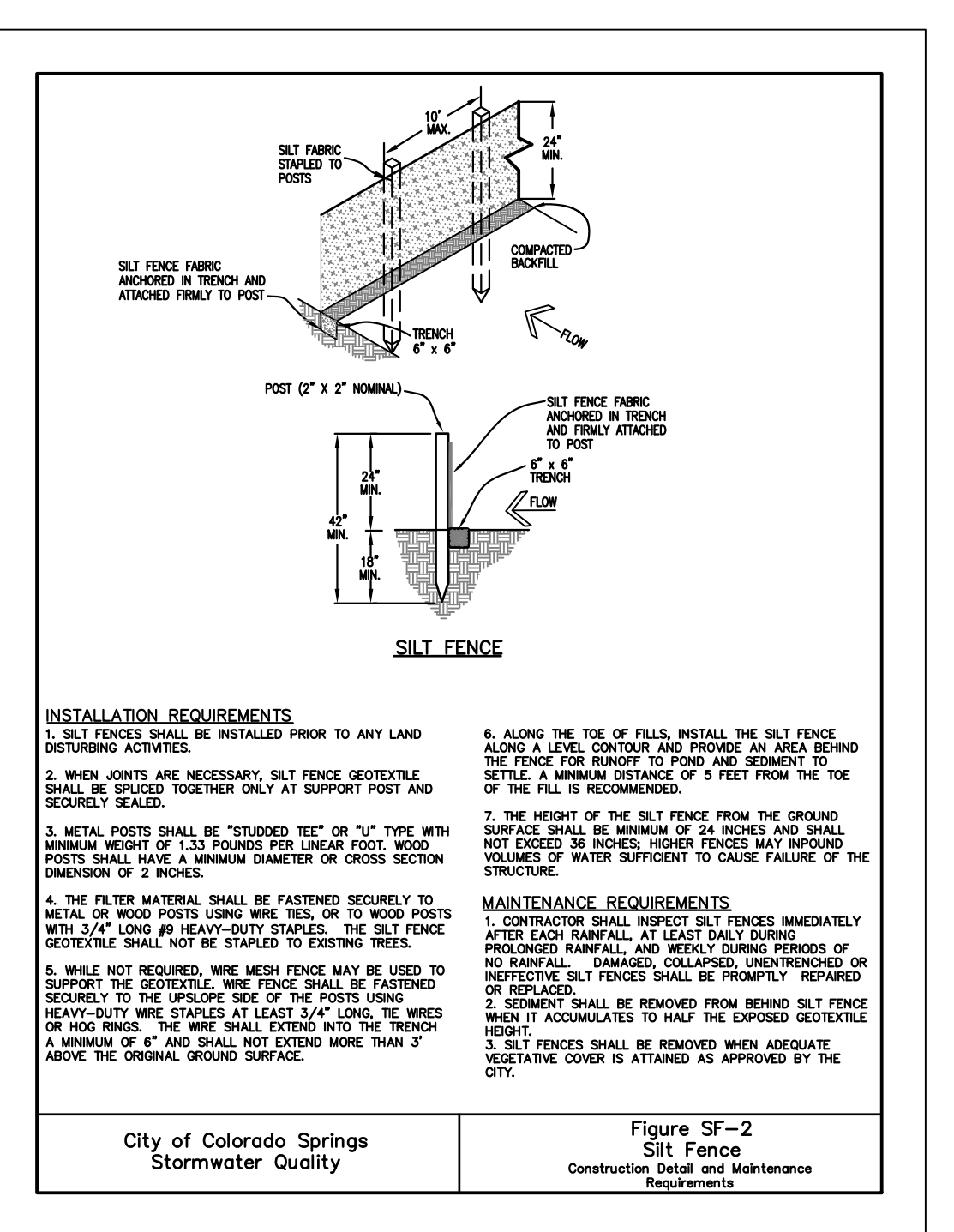
City of Colorado Springs Stormwater Quality

Figure SB-1 Sediment Basin Construction Detail and Maintenance Requirements

EC-6 Rolled Erosion Control Products (RECP)



RECP-6 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010



INSTALLATION REQUIREMENTS

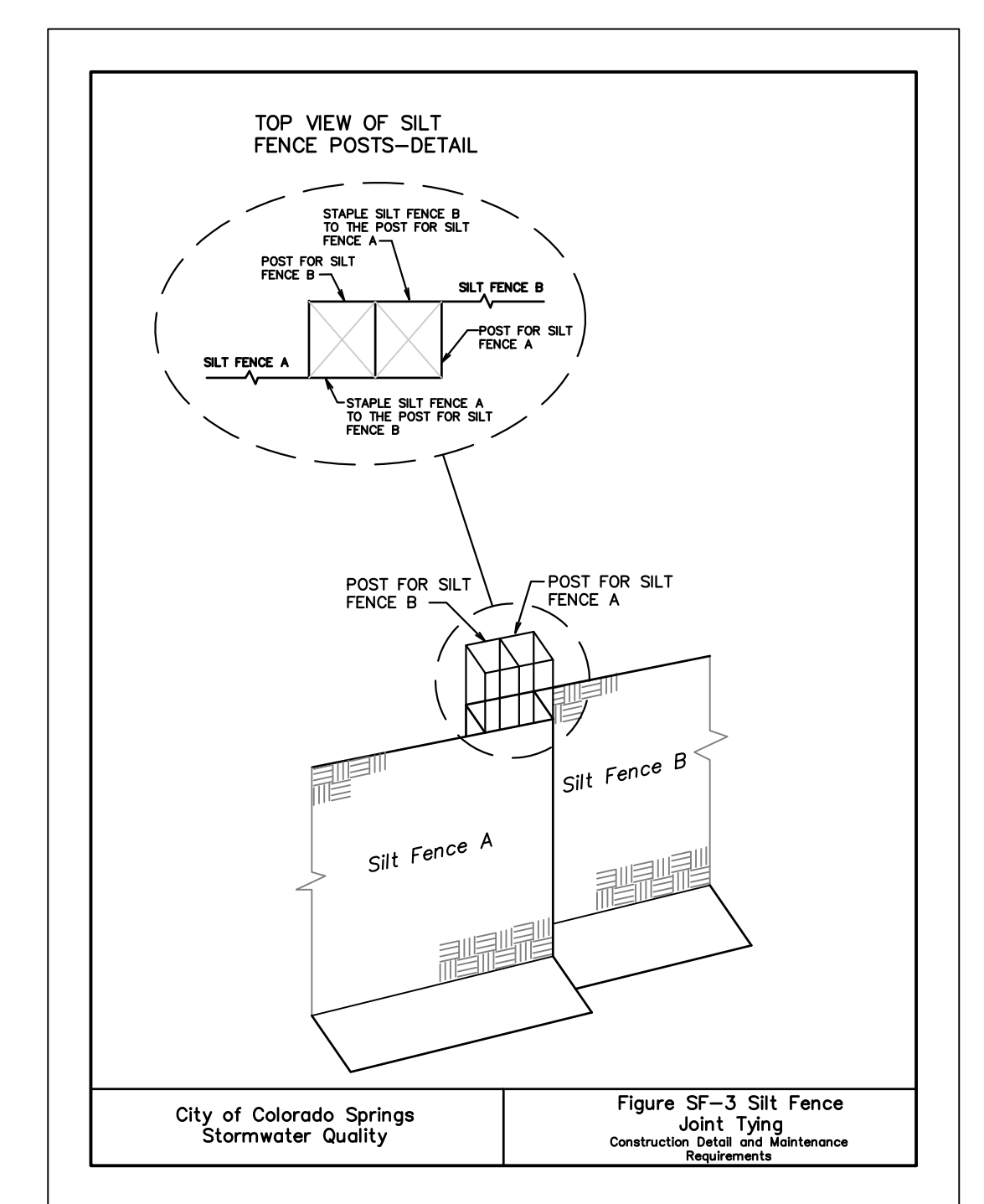
1. SILT FENCES SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
2. WHEN JOINTS ARE NECESSARY, SILT FENCE GEOTEXTILE SHALL BE SPICED TOGETHER ONLY AT SUPPORT POST AND SECURELY SEALED.
3. METAL POSTS SHALL BE "STUDDOED TREE" OR "U" TYPE WITH MINIMUM WEIGHT OF 1.33 POUNDS PER LINEAR FOOT. WOOD 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 #8 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, 8 WIRE OR HOE RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 6" 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 IMPOUND 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, UNINTENDED 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

C2.2, C2.3, C3

Design Volume (acre-ft)	Depth of Outlet (ft)									
	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5
1	7.52	3.88	2.55	1.88	1.48	1.21	1.01	0.87	0.8	0.72
0.8	4.51	2.31	1.53	1.13	0.89	0.72	0.61	0.52	0.47	0.43
0.4	3.01	1.54	1.02	0.75	0.59	0.48	0.40	0.35	0.31	0.28
0.2	1.50	0.77	0.51	0.38	0.30	0.24	0.20	0.17	0.15	0.14
0.1	0.75	0.39	0.26	0.19	0.15	0.12	0.10	0.09	0.08	0.08
0.08	0.45	0.23	0.15	0.11	0.09	0.07	0.06	0.05	0.05	0.05
0.04	0.30	0.15	0.10	0.08	0.06	0.05	0.04	0.03	0.03	0.03
0.02	0.15	0.08	0.05	0.04	0.03	0.02	0.02	0.02	0.02	0.02
0.01	0.08	0.04	0.03	0.02	0.01	0.01	0.01	0.01	0.01	0.01

TABLE SB-1

C2.2, C2.3

Circular Perforation Spacing	Area per Row (sq ft)		
	n=1	n=2	n=3
1/4"	0.250	0.05	0.10
5/16"	0.313	0.08	0.15
3/8"	0.375	0.11	0.22
7/16"	0.438	0.15	0.30
1/2"	0.500	0.20	0.39
9/16"	0.563	0.25	0.50
5/8"	0.625	0.31	0.61
11/16"	0.688	0.37	0.74
3/4"	0.750	0.44	0.88
7/8"	0.875	0.60	1.20
1"	1.000	0.79	1.57
1 1/8"	1.125	0.99	2.08
1 1/4"	1.250	1.23	2.45
1 3/8"	1.375	1.48	2.97
1 1/2"	1.500	1.77	3.53
1 5/8"	1.625	2.07	4.15
1 3/4"	1.750	2.41	4.81
1 7/8"	1.875	2.78	5.52
2"	2.000	3.14	6.28

TABLE SB-2

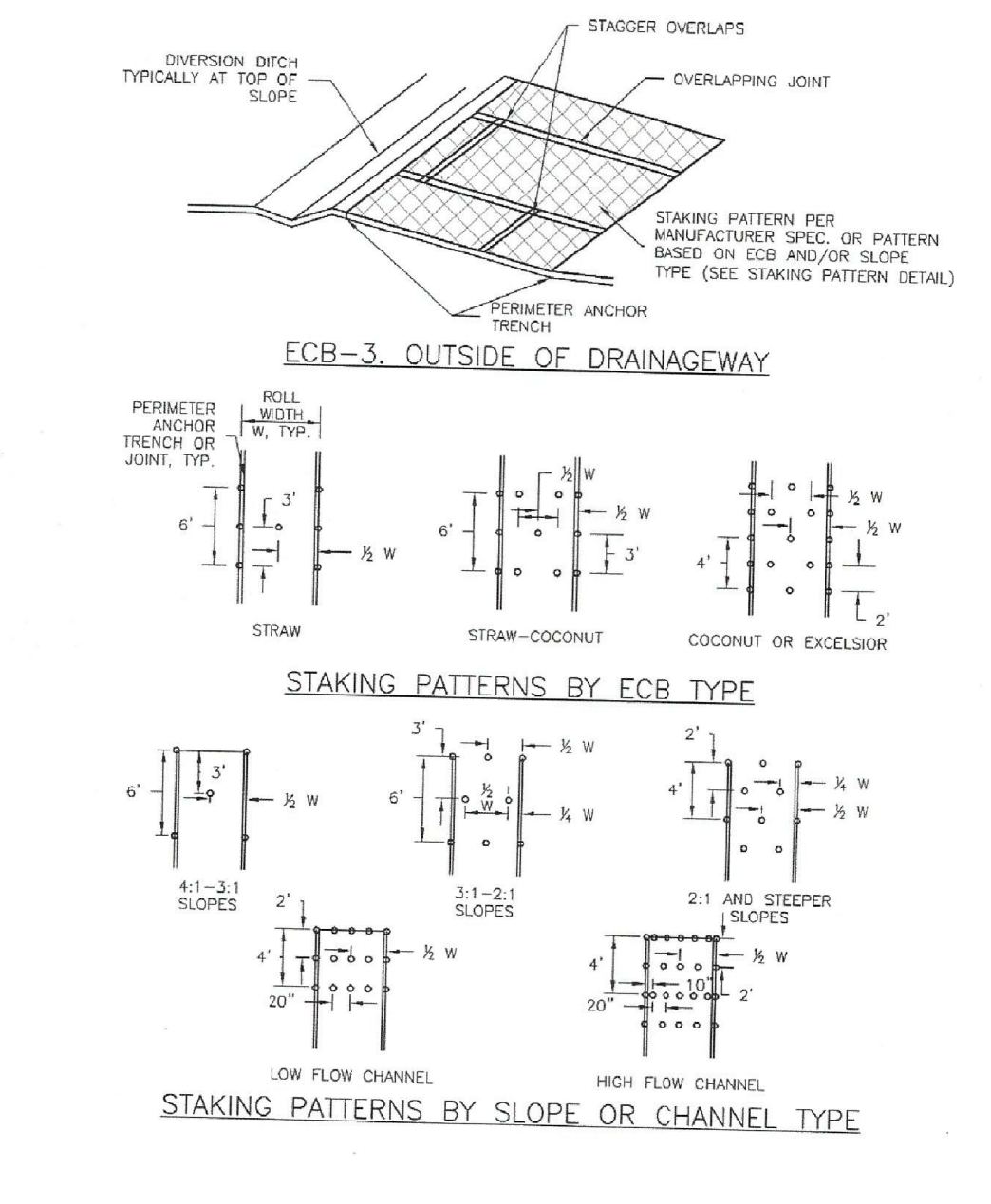
n = Number of columns of perforations

Minimum steel plate thickness: 1/4" 5/16" 3/8"

City of Colorado Springs Stormwater Quality

Figure SB-2 Outlet Sizing Application Techniques and Maintenance Requirements

EC-6 Rolled Erosion Control Products (RECP)



RECP-7 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

SED. BASIN C2.1
VOL=1.83AC-FT
DEPTH=2.5'
AREA PER ROW=3.76

SED. BASIN C2.2
VOL=0.69AC-FT
DEPTH=2.0'
AREA PER ROW=1.8

SED. BASIN C2.3
VOL=0.69AC-FT
DEPTH=2.0'
AREA PER ROW=1.8

SED. BASIN C3
VOL=0.72AC-FT
DEPTH=2.0'
AREA PER ROW=2.0

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DATE: _____

DESCRIPTION: _____

NO. _____

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PROJECT: **THE HILLS AT LORSON RANCH**
FONTAINE BLVD. - WALLEVE DR
COLORADO SPRINGS, COLORADO

DRAWN: RLS
DESIGNED: RLS
CHECKED: RLS

GRADING AND EROSION CONTROL DETAILS

DATE: JAN 18, 2021

PROJECT NO. 100.062

SHEET NUMBER C12.2

TOTAL SHEETS: 16

EC-2 Temporary and Permanent Seeding (TS/PS)

Table TS/PS-2. Minimum Drill Seeding Rates for Perennial Grasses

Common Name	Botanical Name	Growth Season	Growth Form	Seeds/Pound	Pounds of PLS/acre
Alkali Soil Seed Mix					
Alkali sycamore	<i>Sporobolus airoides</i>	Cool	Bunch	1,750,000	0.25
Basin wildrye	<i>Elymus cinereus</i>	Cool	Bunch	165,000	2.5
Sodar streambank wheatgrass	<i>Agropyron riparium 'Sodar'</i>	Cool	Sod	170,000	2.5
Jose tall wheatgrass	<i>Agropyron elongatum 'Jose'</i>	Cool	Bunch	79,000	7.0
Arriba western wheatgrass	<i>Agropyron smithii 'Arriba'</i>	Cool	Sod	110,000	5.5
Total					17.75
Fertile Loamy Soil Seed Mix					
Ephraim crested wheatgrass	<i>Agropyron cristatum 'Ephraim'</i>	Cool	Sod	175,000	2.0
Dural hard fescue	<i>Festuca ovina 'durissima'</i>	Cool	Bunch	565,000	1.0
Lincoln smooth brome	<i>Bromus inermis leysii 'Lincoln'</i>	Cool	Sod	130,000	3.0
Sodar streambank wheatgrass	<i>Agropyron riparium 'Sodar'</i>	Cool	Sod	170,000	2.5
Arriba western wheatgrass	<i>Agropyron smithii 'Arriba'</i>	Cool	Sod	110,000	7.0
Total					15.5
High Water Table Soil Seed Mix					
Meadow foxtail	<i>Alopecurus pratensis</i>	Cool	Sod	900,000	0.5
Redtop	<i>Agrostis alba</i>	Warm	Open sod	5,000,000	0.25
Reed canarygrass	<i>Phalaris arundinacea</i>	Cool	Sod	68,000	0.5
Lincoln smooth brome	<i>Bromus inermis leysii 'Lincoln'</i>	Cool	Sod	130,000	3.0
Pathfinder switchgrass	<i>Panicum virgatum 'Pathfinder'</i>	Warm	Sod	389,000	1.0
Alkar tall wheatgrass	<i>Agropyron elongatum 'Alkar'</i>	Cool	Bunch	79,000	5.5
Total					10.75
Transition Turf Seed Mix¹					
Ruebens Canadian bluegrass	<i>Poa compressa 'Ruebens'</i>	Cool	Sod	2,500,000	0.5
Dural hard fescue	<i>Festuca ovina 'durissima'</i>	Cool	Bunch	565,000	1.0
Citation perennial ryegrass	<i>Lolium perenne 'Citation'</i>	Cool	Sod	247,000	3.0
Lincoln smooth brome	<i>Bromus inermis leysii 'Lincoln'</i>	Cool	Sod	130,000	3.0
Total					7.5

Temporary and Permanent Seeding (TS/PS) EC-2

Table TS/PS-2. Minimum Drill Seeding Rates for Perennial Grasses (cont.)

Common Name	Botanical Name	Growth Season	Growth Form	Seeds/Pound	Pounds of PLS/acre
Sandy Soil Seed Mix					
Blue grama	<i>Bouteloua gracilis</i>	Warm	Sod-forming bunchgrass	825,000	0.5
Camper little bluestem	<i>Schizachyrium scoparium 'Camper'</i>	Warm	Bunch	240,000	1.0
Prairie sandreed	<i>Calamovilfa longifolia</i>	Warm	Open sod	274,000	1.0
Sand dropseed	<i>Sporobolus cryptandrus</i>	Cool	Bunch	5,298,000	0.25
Vaughn sidecoats grama	<i>Bouteloua curtipendula 'Vaughn'</i>	Warm	Sod	191,000	2.0
Arriba western wheatgrass	<i>Agropyron smithii 'Arriba'</i>	Cool	Sod	110,000	5.5
Total					10.25
Heavy Clay, Rocky Foothill Seed Mix					
Ephraim crested wheatgrass ⁴	<i>Agropyron cristatum 'Ephraim'</i>	Cool	Sod	175,000	1.5
Oahu Intermediate wheatgrass	<i>Agropyron intermedium 'Oahu'</i>	Cool	Sod	115,000	5.5
Vaughn sidecoats grama ⁴	<i>Bouteloua curtipendula 'Vaughn'</i>	Warm	Sod	191,000	2.0
Lincoln smooth brome	<i>Bromus inermis leysii 'Lincoln'</i>	Cool	Sod	130,000	3.0
Arriba western wheatgrass	<i>Agropyron smithii 'Arriba'</i>	Cool	Sod	110,000	5.5
Total					17.5

¹ All of the above seeding mixes and rates are based on drill seeding followed by crimped straw mulch. These rates should be doubled if seed is broadcast and should be increased by 50 percent if the seeding is done using a Brillion Drill or is applied through hydraulic seeding. Hydraulic seeding may be substituted for drilling only where slopes are steeper than 3:1. If hydraulic seeding is used, hydraulic mulching should be done as a separate operation.

² See Table TS/PS-3 for seeding dates.

³ If site is to be irrigated, the transition turf seed rates should be doubled.

⁴ Crested wheatgrass should not be used on slopes steeper than 6H to 1V.

⁵ Can substitute 0.5 lbs PLS of blue grama for the 2.0 lbs PLS of Vaughn sidecoats grama.

Temporary and Permanent Seeding (TS/PS) EC-2

Seeding dates for the highest success probability of perennial species along the Front Range are generally in the spring from April through early May and in the fall after the first of September until the ground freezes. If the area is irrigated, seeding may occur in summer months, as well. See Table TS/PS-3 for appropriate seeding dates.

Table TS/PS-1. Minimum Drill Seeding Rates for Various Temporary Annual Grasses

Species ¹ (Common name)	Growth Season ²	Pounds of Pure Live Seed (PLS)/acre	Planting Depth (inches)
1. Oats	Cool	35 - 50	1 - 2
2. Spring wheat	Cool	25 - 35	1 - 2
3. Spring barley	Cool	25 - 35	1 - 2
4. Annual ryegrass	Cool	10 - 15	½
5. Millet	Warm	3 - 15	½ - ¾
6. Sudangrass	Warm	5 - 10	½ - ¾
7. Sorghum	Warm	5 - 10	½ - ¾
8. Winter wheat	Cool	20 - 35	1 - 2
9. Winter barley	Cool	20 - 35	1 - 2
10. Winter rye	Cool	20 - 35	1 - 2
11. Triticale	Cool	25 - 40	1 - 2

¹ Successful seeding of annual grass resulting in adequate plant growth will usually produce enough dead-plant residue to provide protection from wind and water erosion for an additional year. This assumes that the cover is not disturbed or mowed closer than 8 inches.

Hydraulic seeding may be substituted for drilling only where slopes are steeper than 3:1 or where access limitations exist. When hydraulic seeding is used, hydraulic mulching should be applied as a separate operation, when practical, to prevent the seeds from being encapsulated in the mulch.

² See Table TS/PS-3 for seeding dates. Irrigation, if it is applied, may extend the use of cool season species during the summer months.

³ Seeding rates should be doubled if seed is broadcast, or increased by 50 percent if done using a Brillion Drill or by hydraulic seeding.

EC-2 Temporary and Permanent Seeding (TS/PS)

Table TS/PS-3. Seeding Dates for Annual and Perennial Grasses

Seeding Dates	Annual Grasses (Numbers in table reference species in Table TS/PS-1)		Perennial Grasses	
	Warm	Cool	Warm	Cool
January 1-March 15			✓	✓
March 16-April 30	4	1,2,3	✓	✓
May 1-May 15	4		✓	
May 16-June 30	4,5,6,7			
July 1-July 15	5,6,7			
July 16-August 31				
September 1-September 30		8,9,10,11		
October 1-December 31			✓	✓

Mulch
Cover seeded areas with mulch or an appropriate rolled erosion control product to promote establishment of vegetation. Anchor mulch by crimping, netting or use of a non-toxic tackifier. See the Mulching BMP Fact Sheet for additional guidance.

Maintenance and Removal
Monitor and observe seeded areas to identify areas of poor growth or areas that fail to germinate. Reseed and mulch these areas, as needed.

An area that has been permanently seeded should have a good stand of vegetation within one growing season if irrigated and within three growing seasons without irrigation in Colorado. Reseed portions of the site that fail to germinate or remain bare after the first growing season.

Seeded areas may require irrigation, particularly during extended dry periods. Targeted weed control may also be necessary.

Protect seeded areas from construction equipment and vehicle access.

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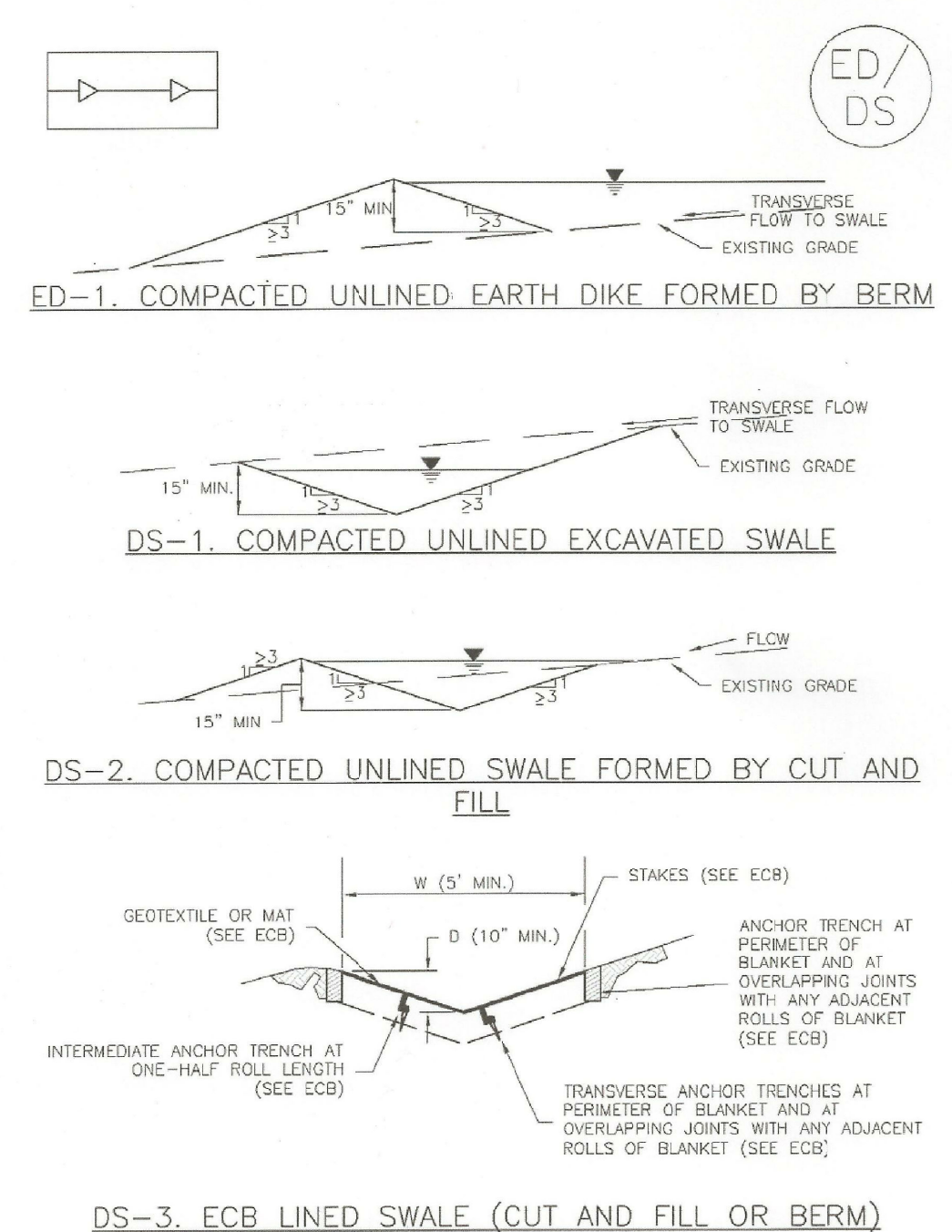
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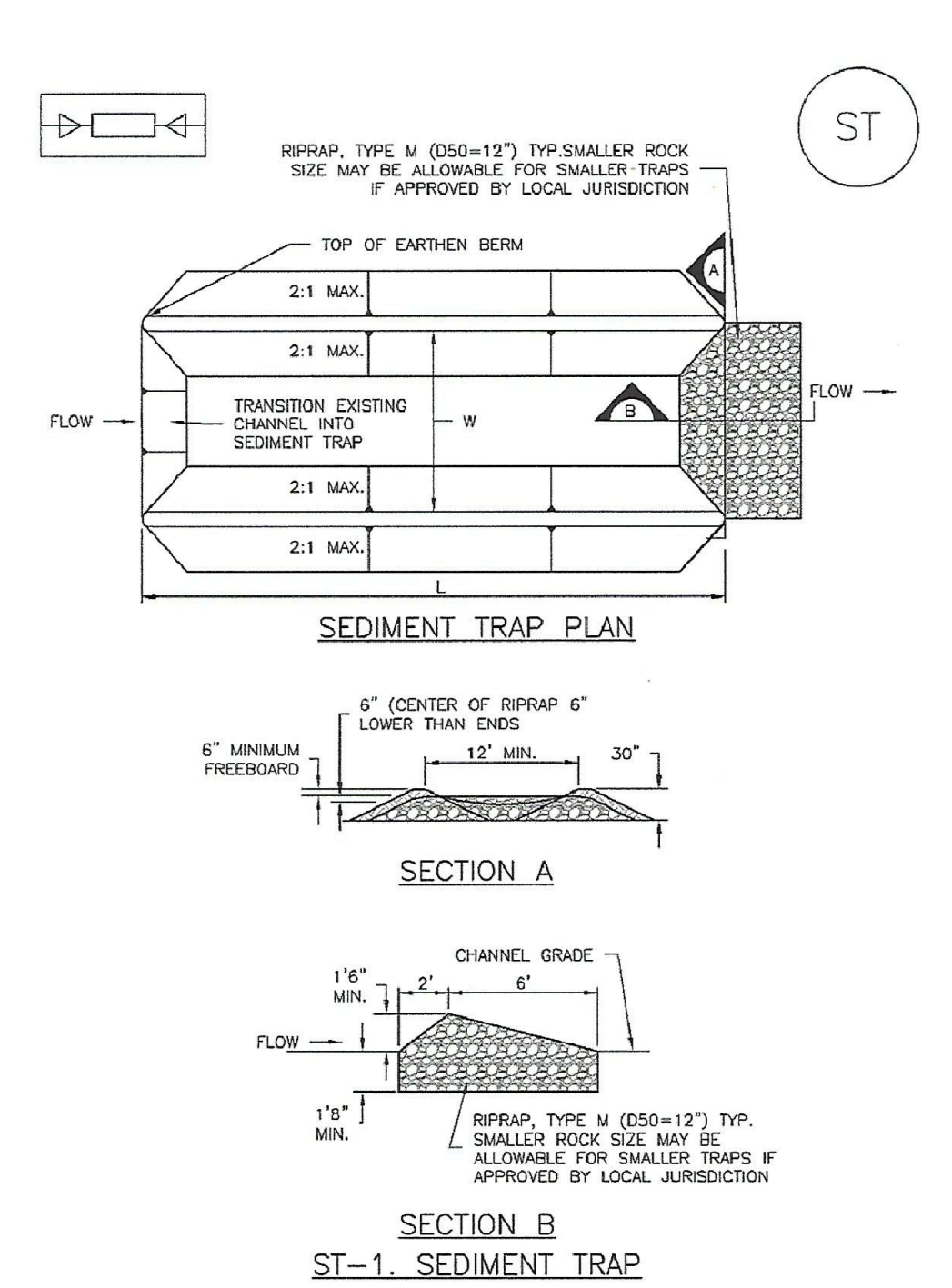
DATE: _____
DESCRIPTION: _____
NO. _____

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DESIGNED: RLS
CHECKED: RLS

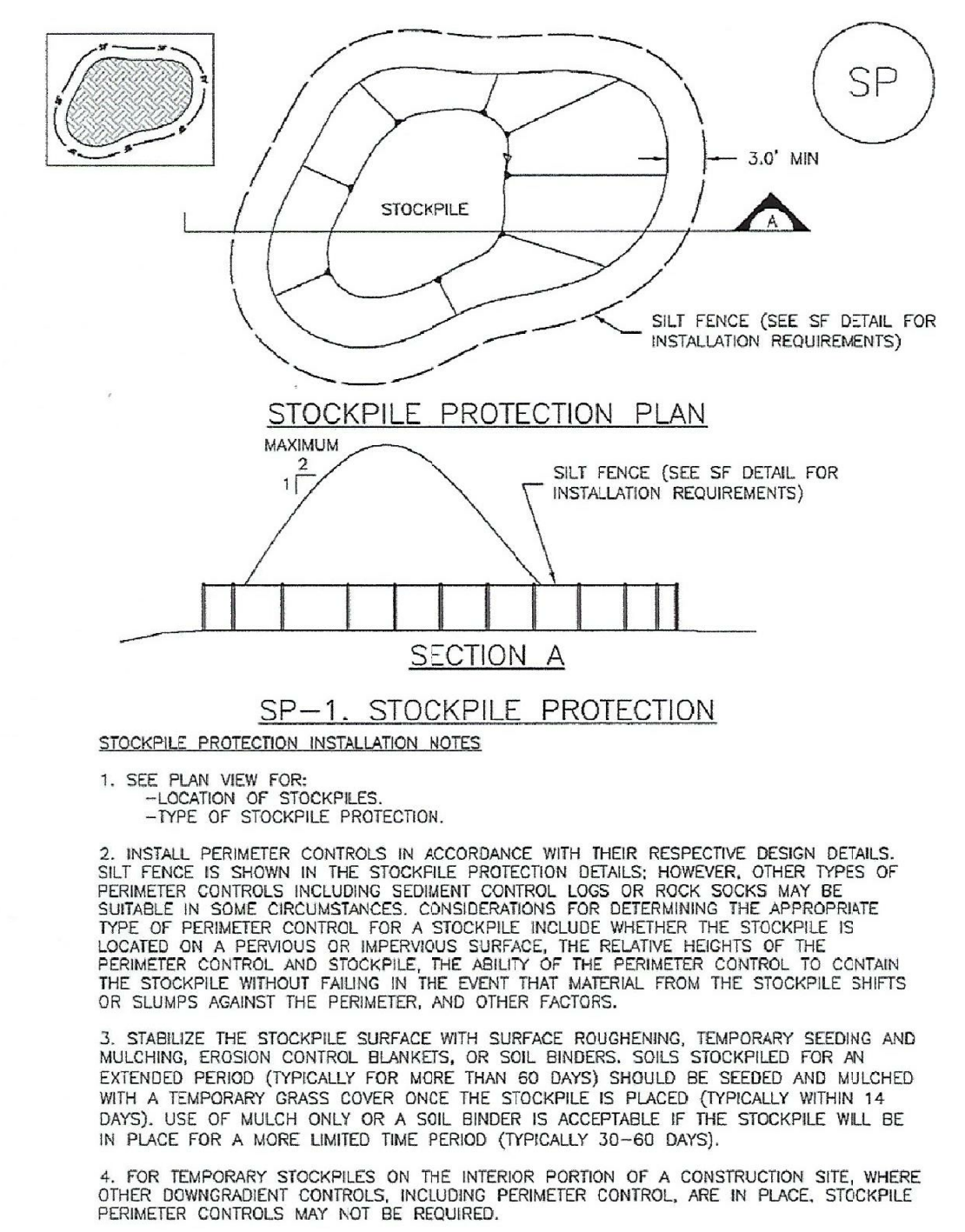
Earth Dikes and Drainage Swales (ED/DS) EC-10



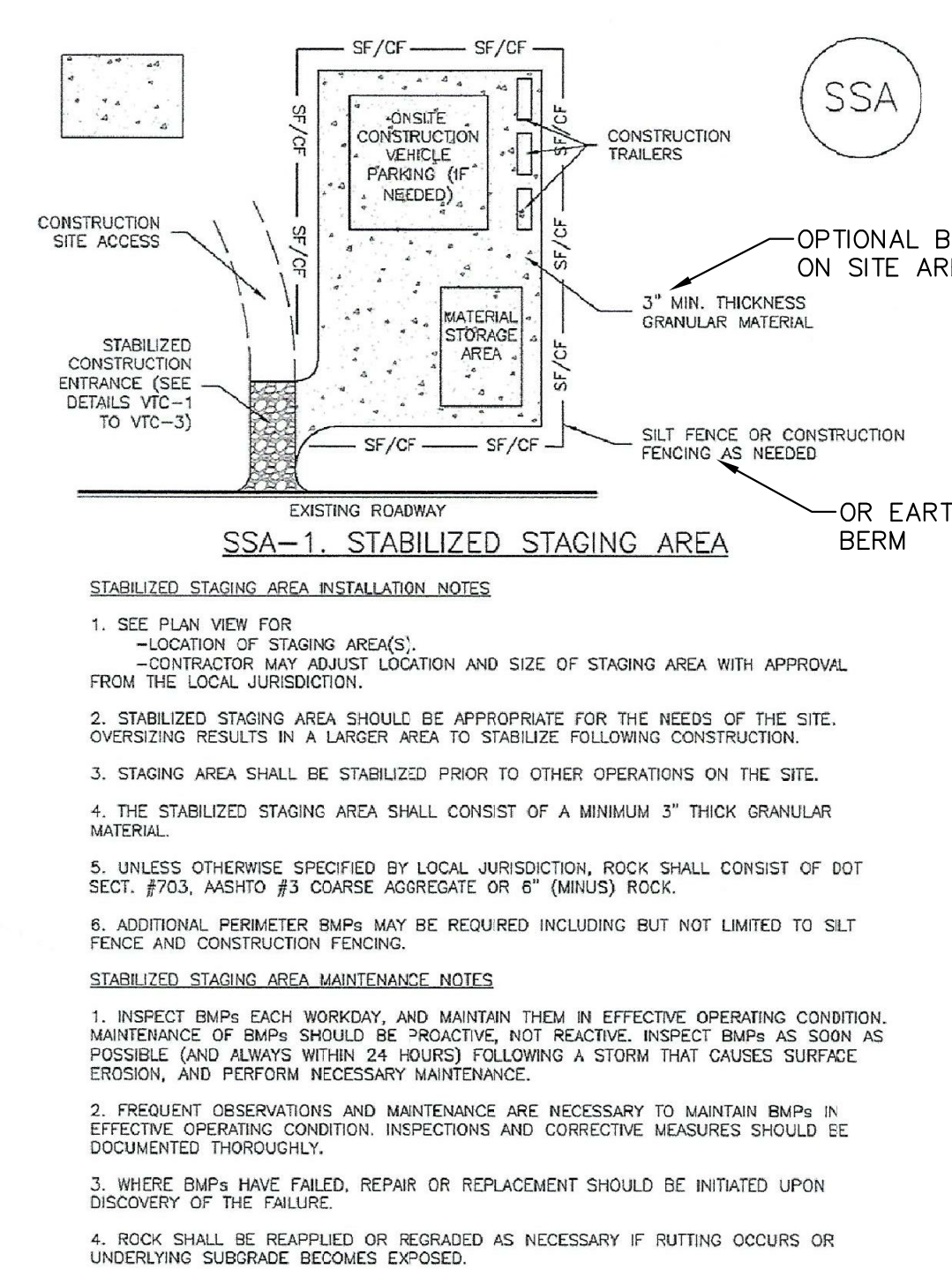
ST-2 Sediment Trap (ST) November 2010



Stockpile Management (SP) MM-2



Stabilized Staging Area (SSA) SM-6



GRADING AND EROSION CONTROL DETAILS

DATE: JAN 18, 2021

PROJECT NO. 100.062

SHEET NUMBER C12.3

TOTAL SHEETS: 16