

PRELIMINARY SITE GRADING CONSTRUCTION PLANS  
FOR  
**THE HILLS AT LORSON RANCH**  
EARLY OVERLOT 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

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 AND ALL OF THE REQUIREMENTS SPECIFIED IN THESE DETAILED PLANS AND SPECIFICATIONS

BUSINESS NAME LORSON, LLC

BY JEFF MARK DATE \_\_\_\_\_

TITLE MANAGER

ADDRESS 212 N. WAHSATCH AVE. SUITE 301  
COLORADO SPRINGS, CO 80903

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.

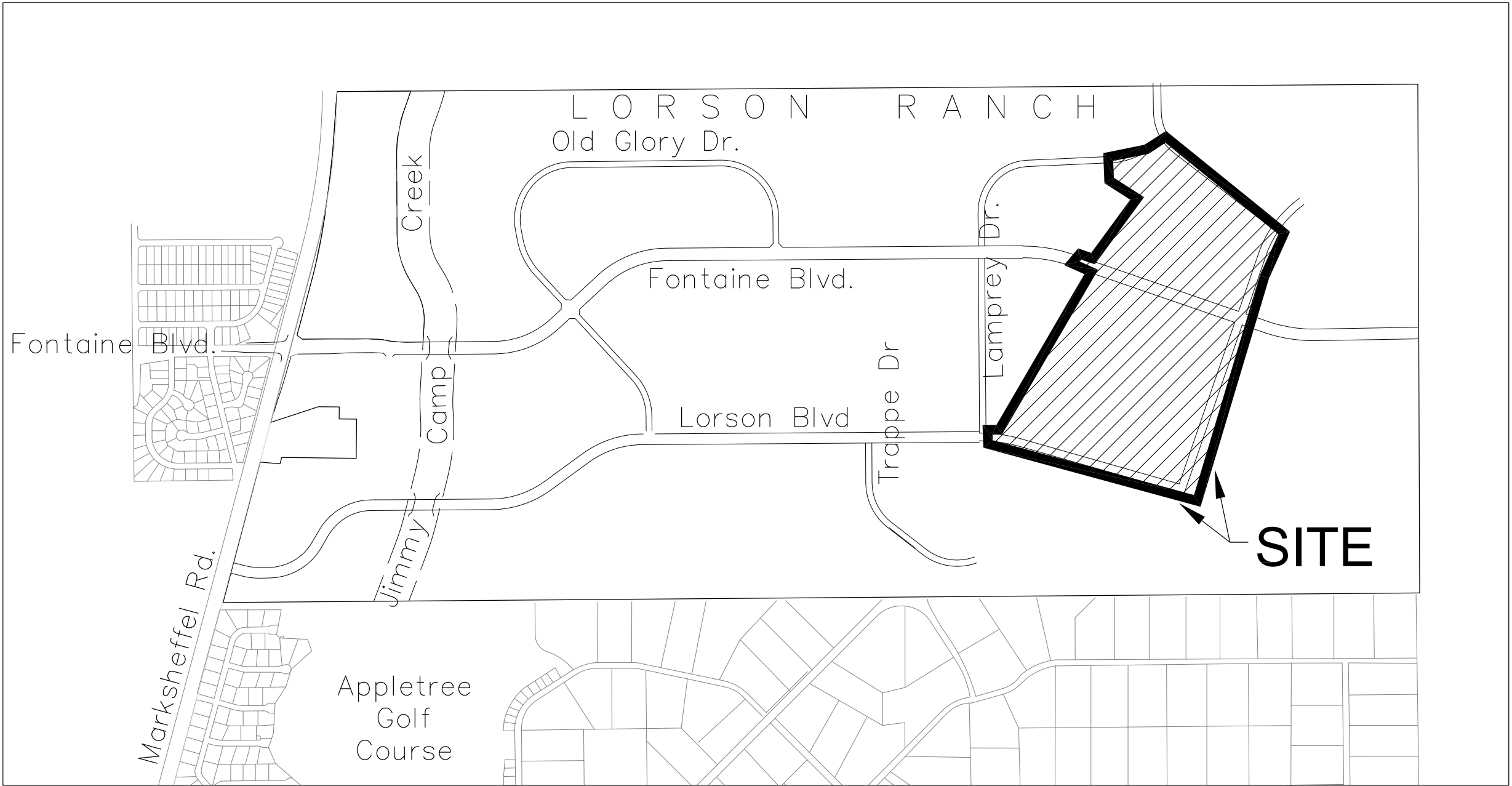
FILED IN ACCORDANCE WITH ECM SECTION 1.12, THESE CONSTRUCTION DOCUMENTS WILL BE VALID FOR CONSTRUCTION FOR A PERIOD OF 2 YEARS, THE PLANS WILL NEED TO BE RESUBMITTED FOR APPROVAL, INCLUDING PAYMENT OF REVIEW FEES AT THE PLANNING AN COMMUNITY DEVELOPMENT DIRECTOR'S DISCRETION.

JENNIFER IRVNE, 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 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



VICINITY MAP  
NO SCALE

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.

LEGEND

--- STREET R.O.W.

--- FUTURE STORM SEWER

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

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.

PUDSP-20-00X

**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

COVER SHEET  
EARLY GRADING AND  
EROSION CONTROL PLAN

DATE:  
MAY 25, 2020

PROJECT NO.  
100.061

SHEET NUMBER  
**C0.1**  
TOTAL SHEETS: 16

CONSTRUCTION NOTES

1. ALL WORK SHALL COMPLY WITH THE CODES AND POLICIES FOR EL PASO COUNTY.
2. EXISTING TOPOGRAPHIC INFORMATION SHOWN ON THIS GRADING PLAN WAS OBTAINED FROM AERIAL CONTOURS AND PREVIOUS CONSTRUCTION DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE TO EXAMINE THE SITE AND BE FAMILIAR WITH THE EXISTING CONDITIONS.
3. DEPTH OF MOISTURE–DENSITY CONTROL FOR THIS PROJECT SHALL BE AS FOLLOWS:  
BASE OF ALL CUTS AND FILLS – 12 INCHES,  
FULL DEPTH OF ALL EMBANKMENTS
4. THE CONTRACTOR IS RESPONSIBLE FOR THE RE–ESTABLISHMENT OF ALL SURVEY MONUMENTS DISTURBED WITHIN THE PROJECT LIMITS.
5. THE CONTRACTOR SHALL PROTECT ALL WORK AREAS AND FACILITIES FROM FLOODING AT ALL TIMES. AREAS AND FACILITIES SUBJECTED TO FLOODING, REGARDLESS OF THE SOURCE OF WATER, SHALL BE PROMPTLY DEWATERED AND RESTORED.
6. PRIOR TO PAVING OPERATIONS, THE ENTIRE SUBGRADE SHALL BE PROOF–ROLLED WITH A LOADED 988 FRONT–END LOADER OR SIMILAR HEAVY RUBBER TIRED VEHICLE (GVW OF 50,000 POUNDS WITH 18 KIP PER AXLE AT TIRE PRESSURES OF 90 PSI) TO DETECT ANY SOFT OR LOOSE AREAS. IN AREAS WHERE SOFT OR LOOSE SOILS, PUMPING OR EXCESSIVE MOVEMENT IS OBSERVED, THE EXPOSED MATERIALS SHALL BE OVER–EXCAVATED TO A MINIMUM DEPTH OF TWO FEET BELOW PROPOSED FINAL GRADE OR TO A DEPTH AT WHICH SOILS ARE STABLE. AFTER THIS HAS BEEN COMPLETED, THE EXPOSED MATERIALS SHALL BE SCARIFIED TO A DEPTH OF 12 INCHES AND MOISTURE CONDITIONED. THE SUBGRADE SHALL THEN BE UNIFORMLY COMPACTED TO A MINIMUM OF 95% OF STANDARD PROCTOR DENSITY (ASTMM D–698) AT 0 TO +4.0% OF OPTIMUM MOISTURE CONTENT FOR A–6 AND A–7–6 SOILS ENCOUNTERED. OTHER SUBGRADE TYPES SHALL BE UNIFORMLY COMPACTED TO A MINIMUM OF 95% OF MODIFIED PROCTOR DENSITY (ASTM D–1557) AT PLUS OR MINUS 2.0% OF OPTIMUM MOISTURE CONTENT. AREAS WHERE STABLE NATURAL SOILS ARE ENCOUNTERED AT PROPOSED SUBGRADE ELEVATION SHALL ALSO BE SCARIFIED (18 INCHES FOR A–7–6 SOILS BELOW FULL–DEPTH ASPHALT CONCRETE) AND COMPACTED AS OUTLINED ABOVE PRIOR TO PAVING OPERATIONS. SUBGRADE FILL SHALL BE PLACED IN SIX–INCH LIFTS AND UNIFORMLY COMPACTED, MEETING THE REQUIREMENTS AS PREVIOUSLY DESCRIBED.
7. SUBGRADE MATERIALS DEEMED UNSUITABLE BY THE ENGINEER SHALL BE EXCAVATED, DISPOSED OF AND REPLACED WITH APPROVED MATERIALS.
8. FILL SHALL BE PLACED IN 8–INCH MAXIMUM LOOSE LIFTS AND SHALL BE COMPACTED PRIOR TO SUCCESSIVE LIFTS.
9. THE CONTRACTOR IS RESPONSIBLE FOR PREVENTING AND CONTROLLING EROSION DURING CONSTRUCTION ACTIVITIES AT ALL TIMES DURING GRADING AND CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE THE FOLLOWING EROSION AND SEDIMENT CONTROL MEASURES:  
– HAY BALE BARRIERS WHERE NEEDED AND/OR AS DIRECTED BY THE ENGINEER.  
– SILT FENCE WHERE NEEDED AND/OR AS DIRECTED BY THE ENGINEER.  
– TEMPORARY SEDIMENTATION BASINS WHERE NEEDED AND/OR AS DIRECTED BY THE ENGINEER.  
– MULCHING AND SEEDING OF EXCESSIVE SLOPED AREAS AS NEEDED OR AS DIRECTED BY THE ENGINEER.  
– TEMPORARY VEHICLE TRACKING CONTROL AS NEEDED AND/OR DIRECTED BY THE ENGINEER.  
– CONCRETE WASH AREAS.  
– INLET PROTECTION.  
THESE AND ALL EROSION CONTROL BEST MANAGEMENT PRACTICES AS SHOWN IN THE GRADING AND EROSION CONTROL PLANS SHALL BE STRICTLY ADHERED TO.
10. FINISHED CONTOURS/SPOT ELEVATIONS SHOWN HEREON REPRESENT FINISHED GRADES. ALL PAVEMENT SUBGRADES ARE BASED ON THE COMPOSITE ASPHALT PAVEMENT RECOMMENDATIONS MADE IN THE “GEOTECHNICAL STUDY” FOR THIS PROJECT.
11. ALL GRADING SHALL CONFORM TO THE GEOTECHICAL RECOMMENDATIONS FOR CREEKSIDE PREPARED BY RMG, “PRELIMINARY SOILS AND GEOLOGY FOR THE HILLS AT LORSON RANCH”, DATED MAY, 2020. CONSTRUCTION OF DETENTION PONDS SHALL CONFORM TO THE GEOTECHNICAL RECOMMENDATIONS IN A REPORT BY RMG TITLED “PRELIMINARY SOILS AND GEOLOGY FOR THE HILLS AT LORSON RANCH”, DATED MAY, 2020. THIS INCLUDES POND OUTFALL DESIGN, KEY–IN, AND SLOPE/EMBANKMENT COMPACTION REQUIREMENTS.
12. THERE MAY BE SOME TOPSOIL WITHIN LORSON RANCH EAST THAT IS NOT SUITABLE FOR RE–USE. CONTRACTOR SHALL AMEND THE TOPSOIL AS NECESSARY AND RE–SPREAD IN ACCORDANCE WITH THE GEOTECHNICAL RECOMMENDATIONS. IF TOPSOIL CANNOT BE AMENDED IT SHALL BE USED AS FILL WHERE NO FUTURE STRUCTURES OR ROADS WILL BE BUILT.

ADDITIONAL SWMP PLAN CONTRACTOR NOTES.

1. CONTRACTOR MUST ADD THEIR CONTACT INFORMATION TO THE SWMP PLANS PRIOR TO CONSTRUCTION
2. IF THE GRADING IS TO BE PHASED THE CONTRACTOR MUST PROVIDE PHASING MAPS FOR INSERTION INTO THE SWMP PLANS.
3. THE CONTRACTOR MUST PROVIDE THE CLIENT THE LOCATION OF ANY POTENTIAL SOURCES OF POLUTIONS SUCH AS FUELING AREAS, ETC TO BE INSERTED INTO THE SWMP PLANS.
4. THE ON–SITE SWMP PLAN SHALL BE LOCATED AT THE SE CORNER OF FONTAINE BLVD AND ROCKCASTLE DR UNLESS OTHERWISE DOCUMENTED.
5. EXISTING VEGETATION WITHIN THE LIMITS OF CONSTRUCTION CONSISTS OF NATIVE GRASSES AND WEEDS. GROUND COVER IS ESTIMATED AT 70% DENSITY. EXISTING VEGETATION WILL BE VERIFIED VISUALLY IN THE FIELD PRIOR TO STARTING WORK.

EL PASO COUNTY STANDARD CONSTRUCTION NOTES:

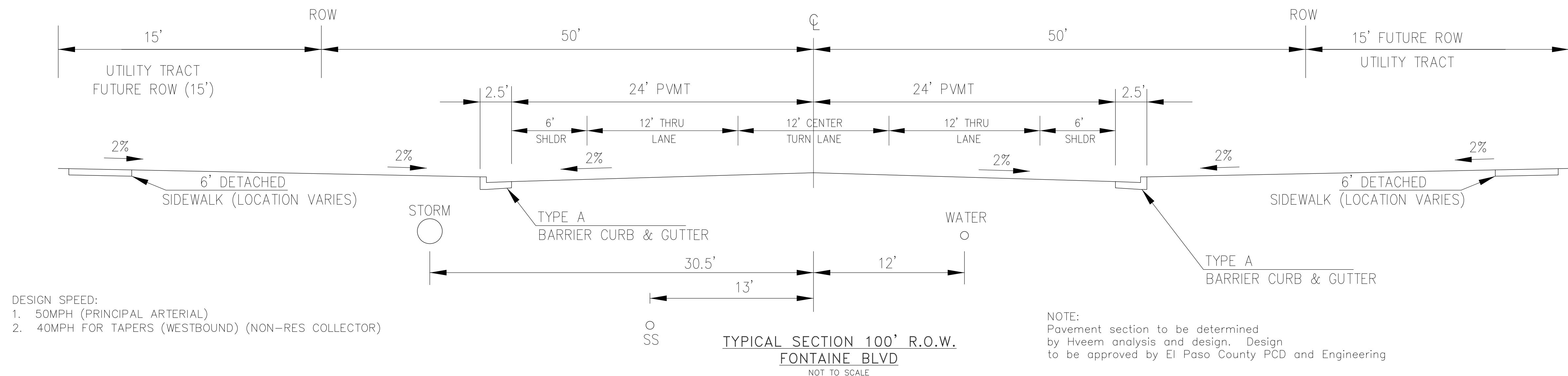
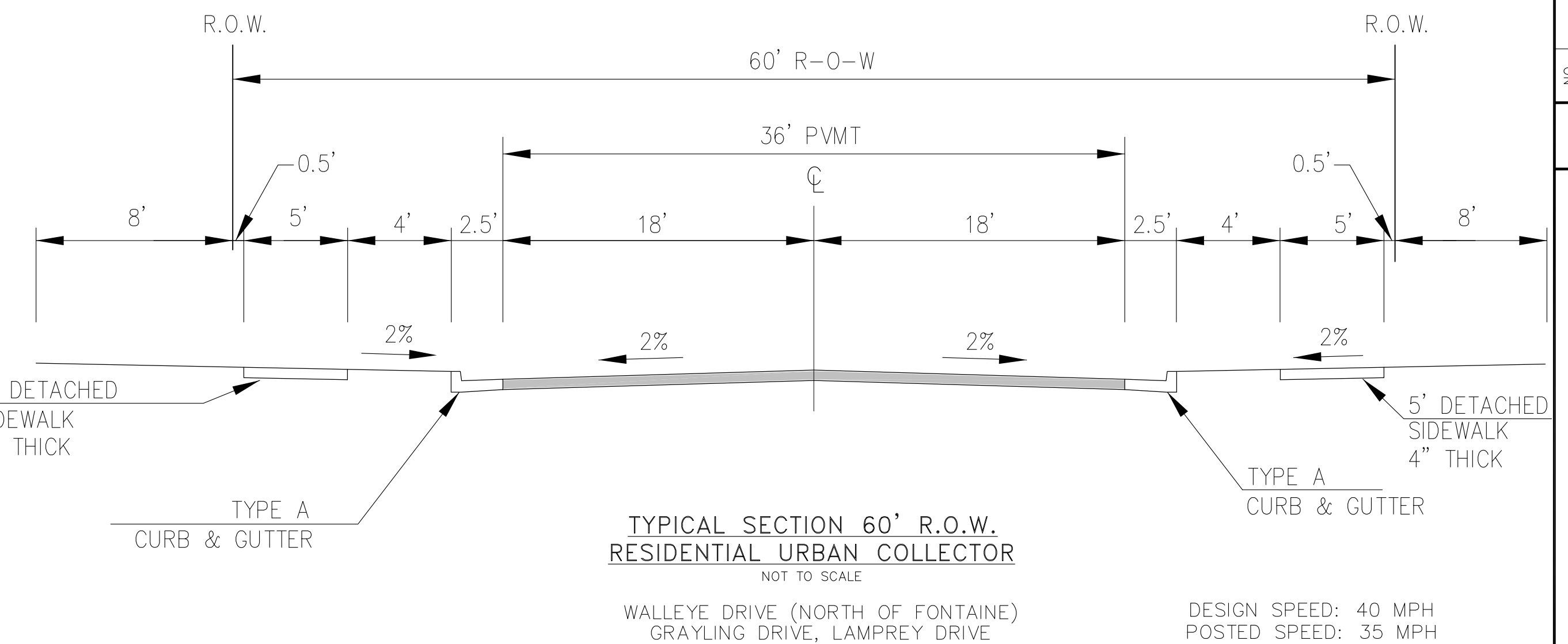
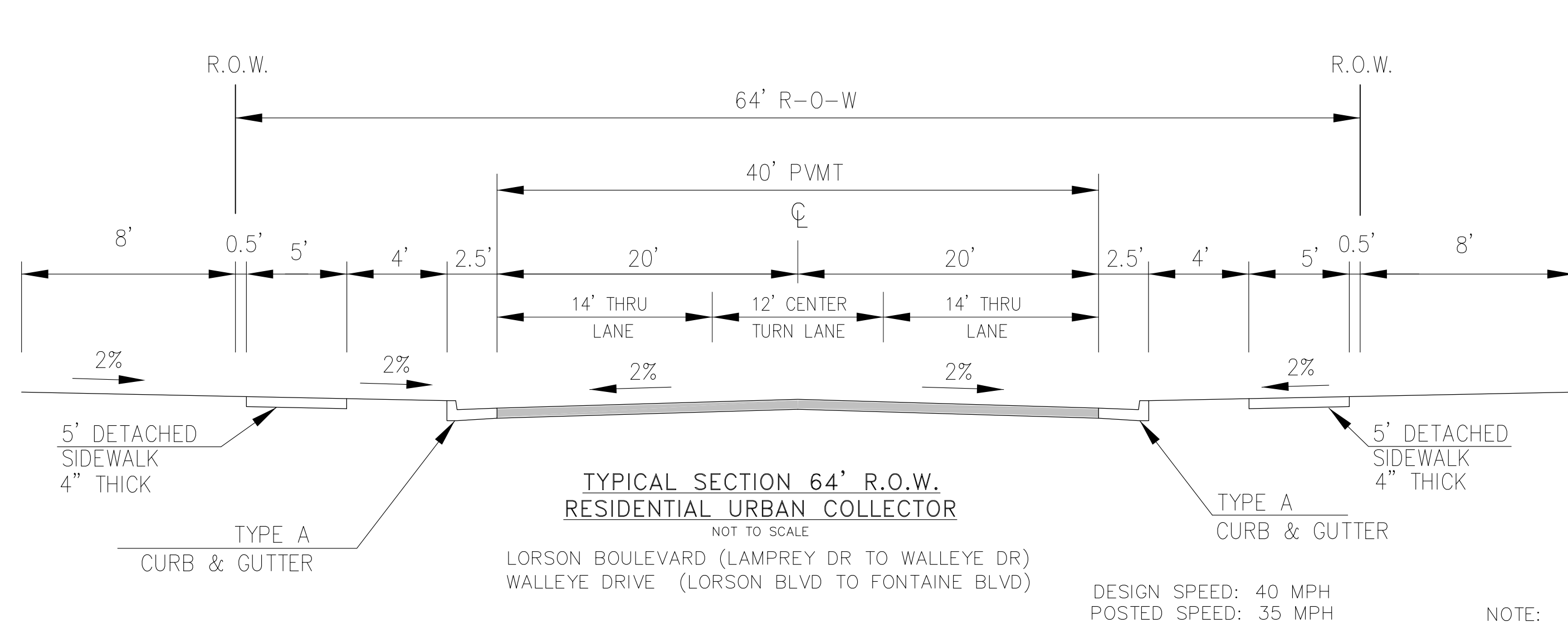
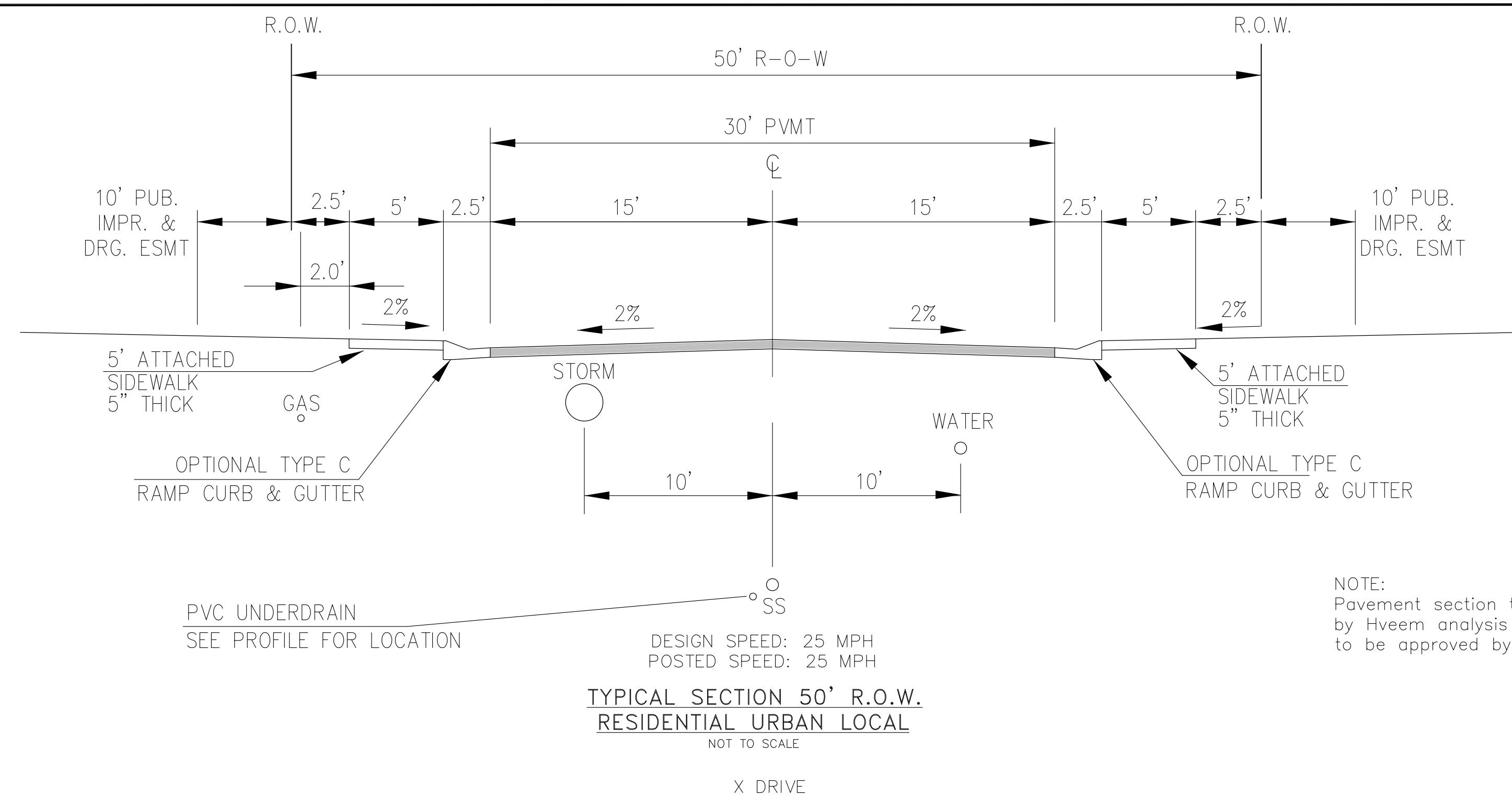
1. ALL DRAINAGE AND ROADWAY CONSTRUCTION SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND THE EL PASO COUNTY ENGINEERING CRITERIA MANUAL.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATION AND FIELD NOTIFICATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, BEFORE BEGINNING CONSTRUCTION. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CALL 811 TO CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC).
3. CONTRACTOR SHALL KEEP A COPY OF THESE APPROVED PLANS, THE GRADING AND EROSION CONTROL PLAN, THE STORMWATER MANAGEMENT PLAN (SWMP), THE SOILS AND GEOTECHNICAL REPORT, AND THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS AT THE JOB SITE AT ALL TIMES, INCLUDING THE FOLLOWING:  
a. EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM)  
b. CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2  
c. COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION  
d. CDOT M & S STANDARDS
4. 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. ANY MODIFICATIONS NECESSARY TO MEET CRITERIA AFTER–THE–FACT WILL BE ENTIRELY THE DEVELOPER’S RESPONSIBILITY TO RECTIFY.
5. IT IS THE DESIGN ENGINEER’S RESPONSIBILITY TO ACCURATELY SHOW EXISTING CONDITIONS, BOTH ONSITE AND OFFSITE, ON THE CONSTRUCTION PLANS. ANY MODIFICATIONS NECESSARY DUE TO CONFLICTS, OMISSIONS, OR CHANGED CONDITIONS WILL BE ENTIRELY THE DEVELOPER’S RESPONSIBILITY TO RECTIFY.
6. CONTRACTOR SHALL SCHEDULE A PRE–CONSTRUCTION MEETING WITH EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT (PCD) – INSPECTIONS, PRIOR TO STARTING CONSTRUCTION.
7. IT IS THE CONTRACTOR’S RESPONSIBILITY TO UNDERSTAND THE REQUIREMENTS OF ALL JURISDICTIONAL AGENCIES AND TO OBTAIN ALL REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO EL PASO COUNTY EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP), REGIONAL BUILDING FLOODPLAIN DEVELOPMENT PERMIT, U.S. ARMY CORPS OF ENGINEERS–ISSUED 401 AND/OR 404 PERMITS, AND COUNTY AND STATE FUGITIVE DUST PERMITS.
8. CONTRACTOR SHALL NOT DEVIATE FROM THE PLANS WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE DESIGN ENGINEER AND DSD. CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY UPON DISCOVERY OF ANY ERRORS OR INCONSISTENCIES.
9. ALL STORM DRAIN PIPE SHALL BE CLASS III RCP UNLESS OTHERWISE NOTED AND APPROVED BY PCD.
10. CONTRACTOR SHALL COORDINATE GEOTECHNICAL TESTING PER ECM STANDARDS. PAVEMENT DESIGN SHALL BE APPROVED BY EL PASO COUNTY PCD PRIOR TO PLACEMENT OF CURB AND GUTTER AND PAVEMENT.
11. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE AT APPROVED CONSTRUCTION ACCESS POINTS.
12. SIGHT VISIBILITY TRIANGLES AS IDENTIFIED IN THE PLANS SHALL BE PROVIDED AT ALL INTERSECTIONS. OBSTRUCTIONS GREATER THAN 18 INCHES ABOVE FLOWLINE ARE NOT ALLOWED WITHIN SIGHT TRIANGLES.
13. SIGNING AND STRIPING SHALL COMPLY WITH EL PASO COUNTY PUBLIC WORK DEPARTMENT AND MUTCD CRITERIA.
14. CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRED BY EL PASO COUNTY PWD, INCLUDING WORK WITHIN THE RIGHT–OF–WAY AND SPECIAL TRANSPORT PERMITS.
15. THE LIMITS OF CONSTRUCTION SHALL REMAIN WITHIN THE PROPERTY LINE UNLESS OTHERWISE NOTED. THE OWNER/DEVELOPER SHALL OBTAIN WRITTEN PERMISSION AND EASEMENTS, WHERE REQUIRED, FROM ADJOINING PROPERTY OWNER(S) PRIOR TO ANY OFF–SITE DISTURBANCE, GRADING, OR CONSTRUCTION.

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 (SWMP) 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 of uncontaminated ground water 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 onsite 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 onsite 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 RMG 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

CORE ENGINEERING GROUP	DATE	
	DESCRIPTION	
	NO.	
	DRAWN: RLS DESIGNED: RLS CHECKED: RLS	
PREPARED FOR: LORSON, LLC 212 N. WAHSATCH AVE, SUITE 301 COLORADO SPRINGS, COLORADO 80903 CONTACT: RICHARD L. SCHINDLER, P.E. EMAIL: Rich@eg1.com	PROJECT: THE HILLS AT LORSON RANCH FONTAINE BLVD – WALLEYE DR COLORADO SPRINGS, COLORADO	
OVERLOT EARLY SITE GRADING PLAN NOTES		
DATE: MAY 25, 2020		
PROJECT NO. 100.061		
SHEET NUMBER C0.2		
TOTAL SHEETS: 16		



**CORE**  
**ENGINEERING GROUP**  
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CONTACT: RICHARD L. SCHINDLER, P.E.  
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**LORSON, LLC**  
212 N. WAHSATCH AVE, SUITE 301  
COLORADO SPRINGS, COLORADO 80903  
(719) 635-3200  
CONTACT: JEFF MARK

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

OVERLOT EARLY  
SITE GRADING  
TYPICAL ROADWAY SECTIONS

DATE:  
MAY 25, 2020

PROJECT NO.  
100.061

SHEET NUMBER  
C0.3

TOTAL SHEETS: 16





CORE

ENGINEERING GROUP

15004 1ST AVENUE S,  
SUITE 301  
DENVER, CO 80202  
CONTACT: RICHARD L. SCHINDLER, P.E.  
EMAIL: rich@ceg.com

DATE:

NO:

DESCRIPTION:

PROJECT FOR:

THE HILLS AT LORSON RANCH

212 N. WAHATCH AVE, SUITE 301  
COLORADO SPRINGS, COLORADO 80903  
(719) 635-3200  
CONTACT: JEFF MARK

DRAWN:

DESIGNED:

CHECKED:

RLS

RLS

RLS

DATE:

MAY 25, 2020

PROJECT NO.

100.061

SHEET NUMBER

C4.1

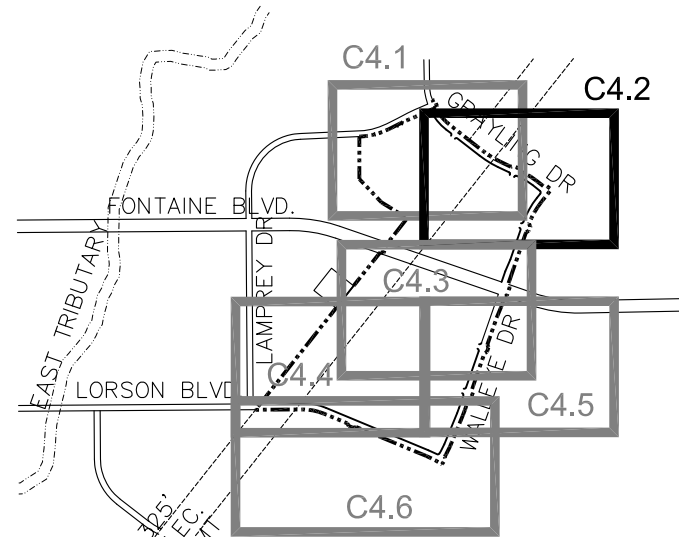
TOTAL SHEETS:

16

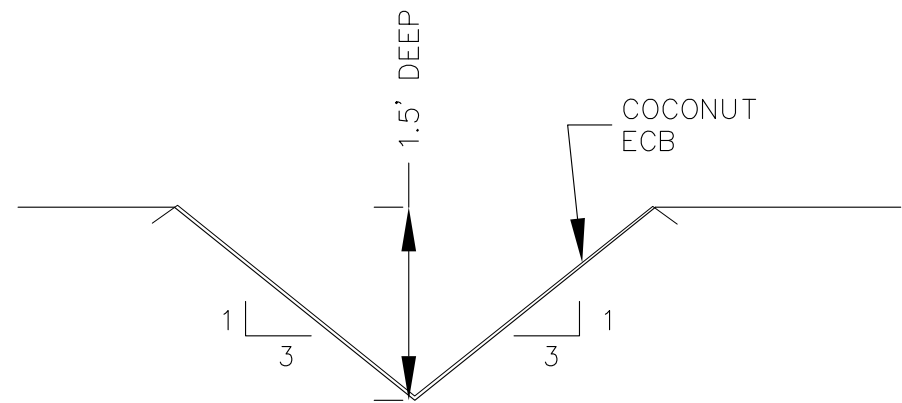


- NOTE:
1. SLOPES SHALL BE 3:1 UNLESS OTHERWISE NOTED
  2. POND SLOPES SHALL BE 3:1
  3. STRAW ECB SHALL BE PLACED ON ALL POND SIDE SLOPES AND PERMANENT SLOPES 6:1 OR STEEPER.
  4. TEMPORARY SEEDING REQUIRED ON DISTURBED AREAS AND STOCKPILES WHICH ARE NOT AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER 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

(TS)



KEY MAP  
NO SCALE



TEMP SWALE TO POND BTM

INITIAL BMP'S:

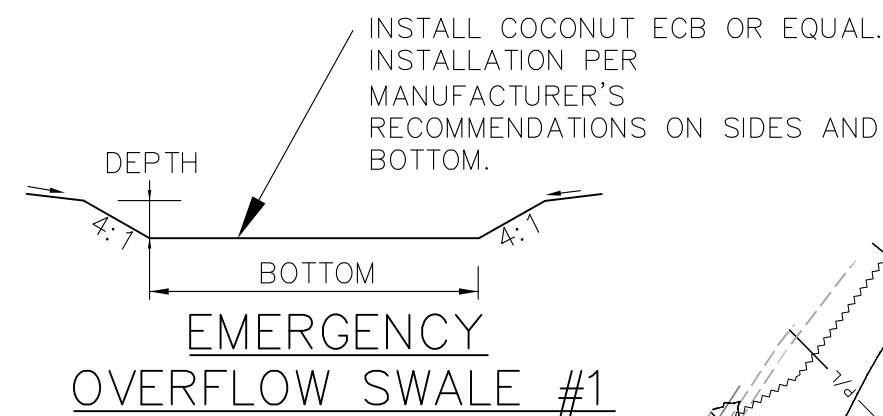
1. PERIMETER SILT FENCE
2. VEHICLE TRACKING CONTROL PADS
3. INLET PROTECTION FOR EXISTING POND OUTFALLS
4. INLET PROTECTION FOR EXISTING INLETS
4. PLACEMENT OF ON-SITE SWMP MANUAL

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



EMERGENCY OVERFLOW SWALE #1

BOTTOM=10'  
DEPTH=1.0'  
VELOCITY=4.8 FT/S  
SLOPE=1.4%  
Q100=27.50 CFS  
FLOW DEPTH=0.48'

SEDIMENTATION BASIN C2.2  
PER DETAIL SB-1  
TRIB. AREA=160C  
VOLUME PROVIDED=30,000 CF  
AT ELEVATION 5758.50  
VOLUME REQ=28,500 CF  
9 ROWS, 2 COLUMNS  
3/4" HOLES  
8" RISER PIPE



<b>CORE</b> <b>ENGINEERING GROUP</b> 15004 1ST AVENUE S. DENVER, CO 80202 PHONE: 719.570.1100 CONTACT: RICHARD L. SCHINDLER, P.E. EMAIL: Rich@ceg.com	
DATE	
DESCRIPTION	
NO.	
PROJECT FOR: <b>THE HILLS AT LORSON RANCH</b> 212 N. WAHSATCH AVE, SUITE 301 COLORADO SPRINGS, COLORADO 80903 (719) 635-3200 CONTACT: JEFF MARK	
DRAWN:	RLS
DESIGNED:	RLS
CHECKED:	RLS
DATE: MAY 25, 2020	
PROJECT NO. 100.061	
SHEET NUMBER C4.2	
TOTAL SHEETS: 16	





SEE SHEET C4.2

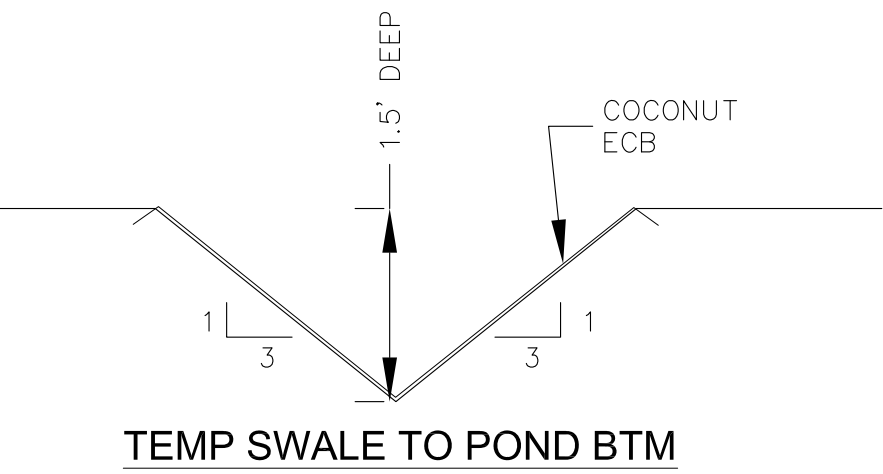
SEE SHEET C4.4

SEE SHEET C4.5

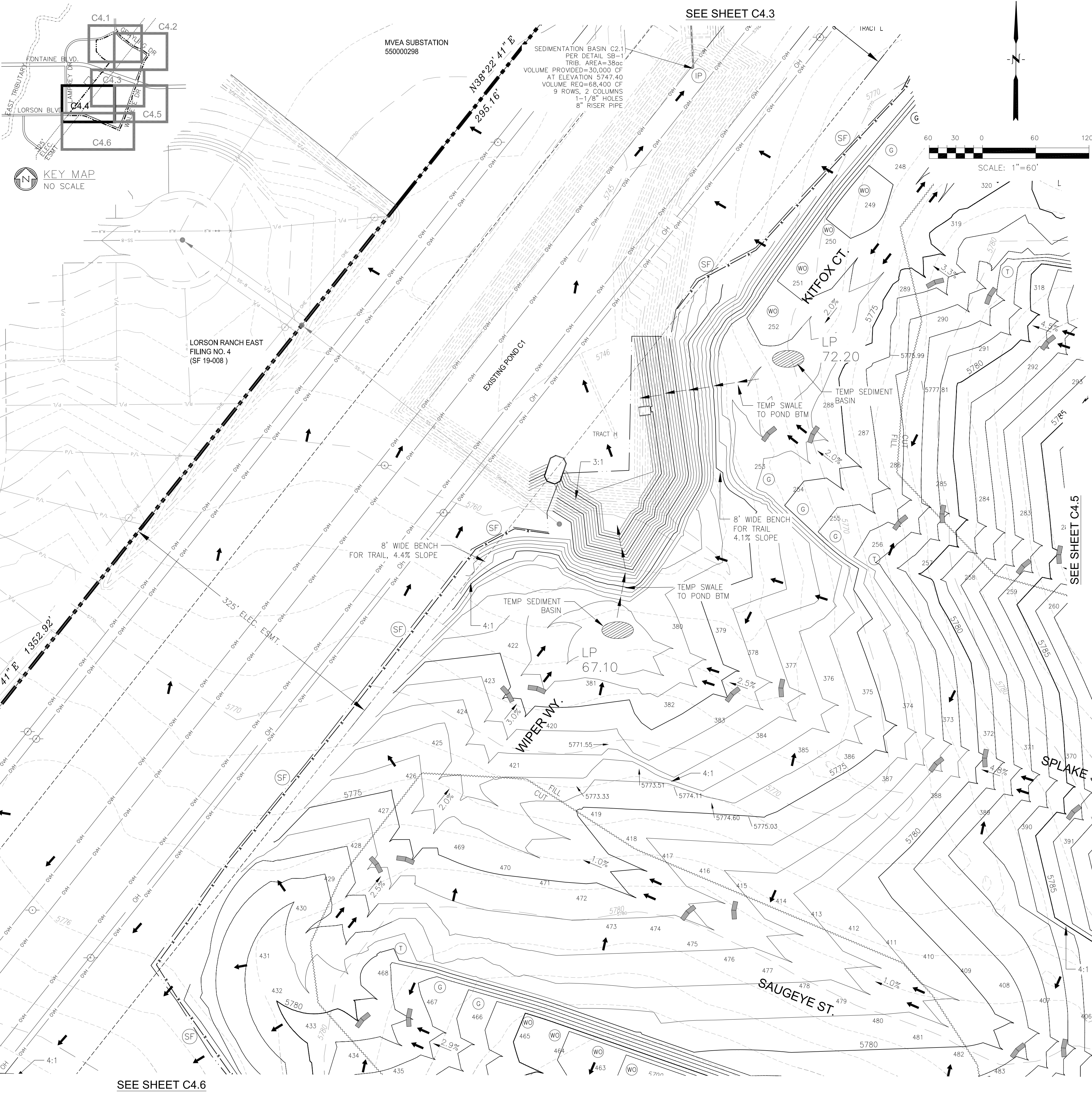
<b>CORE</b> ENGINEERING GROUP 15004 1ST AVENUE S. DENVER, CO 80202 PHONE: 719.570.1100 CONTACT: RICHARD L. SCHINDLER, P.E. EMAIL: Rich@ceg1.com	
DATE	
DESCRIPTION	
NO.	
PROJECT: THE HILLS AT LORSON RANCH PREPARED FOR: LORSON, LLC 212 N. WAHSATCH AVE, SUITE 301 COLORADO SPRINGS, COLORADO 80903 CONTACT: JEFF MARK	
DRAWN: RLS	
DESIGNED: RLS	
CHECKED: RLS	
DATE: MAY 25, 2020	
PROJECT NO. 100.061	
SHEET NUMBER C4.3	
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.
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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



<b>CORE</b> ENGINEERING GROUP 15004 1ST AVENUE S. DENVER, CO 80202 PHONE: 719.570.1100 CONTACT: RICHARD L. SCHINDLER, P.E. EMAIL: Rich@ceg.com	
DATE	PROJECT FOR: <b>LORSON, LLC</b> 212 N. WAHSATCH AVE, SUITE 301 COLORADO SPRINGS, COLORADO 80903 CONTACT: JEFF MARK
NO.	PROJECT: <b>THE HILLS AT LORSON RANCH</b> FONTAINE BLVD. - WALLEYE DR COLORADO SPRINGS, COLORADO
DESCRIPTION	DRAWN: RLS DESIGNED: RLS CHECKED: RLS
THE HILLS AT LORSON RANCH OVERLOT EARLY GRADING AND EROSION CONTROL PLAN	
DATE: MAY 25, 2020	
PROJECT NO. 100.061	
SHEET NUMBER C4.4	
TOTAL SHEETS: 16	



NOTE:

1. SLOPES SHALL BE 3:1 UNLESS OTHERWISE NOTED
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3. INLET PROTECTION FOR EXISTING POND OUTFALLS
4. INLET PROTECTION FOR EXISTING INLETS
4. PLACEMENT OF ON-SITE SWMP MANUAL

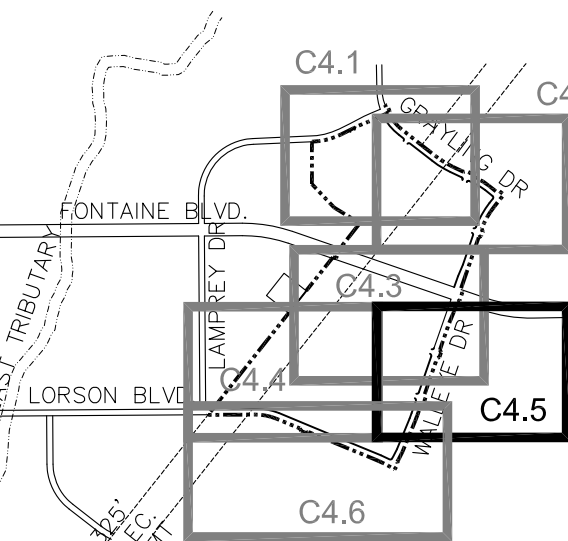
INTERIM BMP'S:

1. TEMPORARY SEDIMENT BASINS AS GRADING PROGRESSES
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3. POND OUTLET STRUCTURES

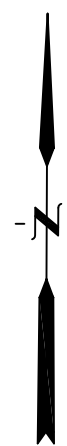
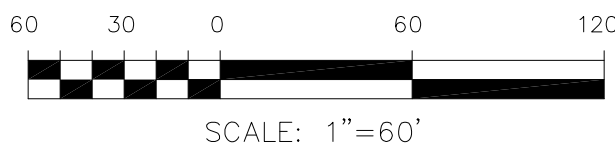
SEE SHEET C4.3



KEY MAP  
NO SCALE

SEE SHEET C4.4

SEE SHEET C4.6



CORE

ENGINEERING GROUP

15004 1ST AVENUE S,  
DENVER, CO 80202  
PHONE: 719.570.1100  
CONTACT: RICHARD L. SCHINDLER, P.E.  
EMAIL: Rich@ceg.com

DATE

DESCRIPTION

NO.

DRAWN: RLS  
DESIGNED: RLS  
CHECKED: RLS

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

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

THE HILLS AT LORSON RANCH  
OVERLOT EARLY GRADING AND  
EROSION CONTROL PLAN

DATE:  
MAY 25, 2020

PROJECT NO.  
100.061

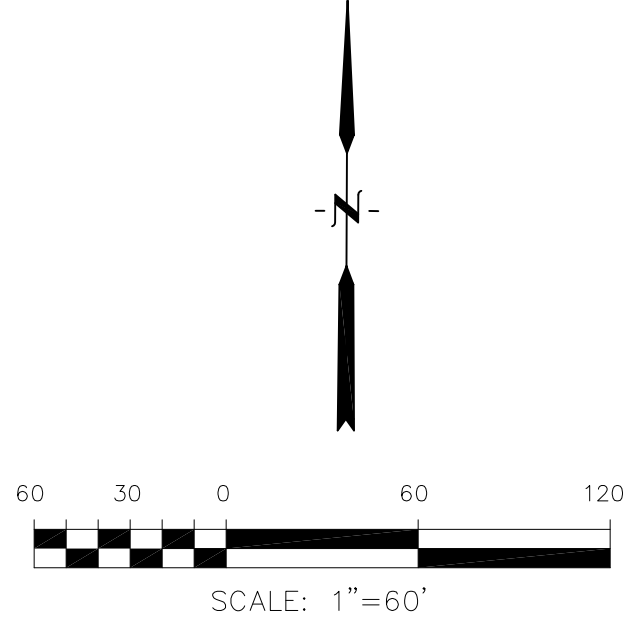
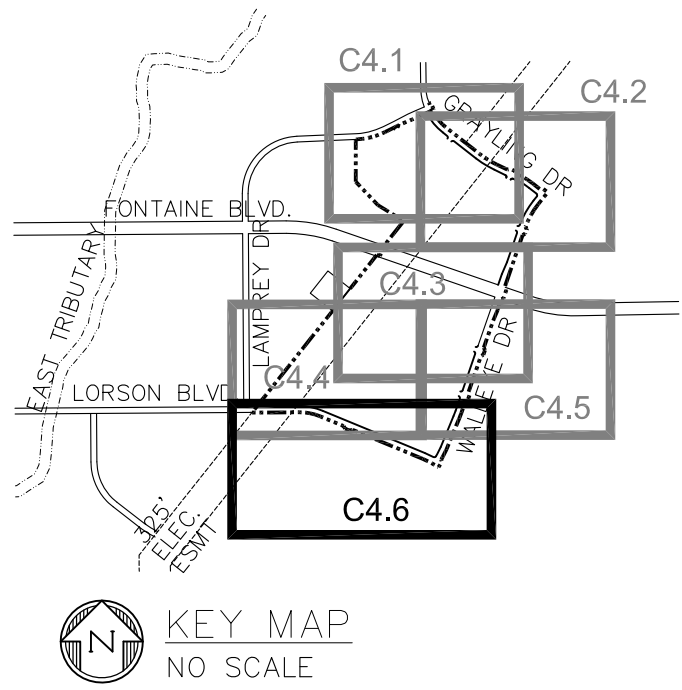
SHEET NUMBER  
C4.5

TOTAL SHEETS: 16



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  4. INLET PROTECTION FOR EXISTING INLETS
  4. PLACEMENT OF ON-SITE SWMP MANUAL
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  2. TEMPORARY SEEDING/MULCHING AS NEEDED
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- FINAL BMP'S:
1. FINAL SEEDING AND MULCHING
  2. STRAW ECB ON PERMANENT SLOPES 6:1 OR STEEPER.
  3. POND OUTLET STRUCTURES



CORE

ENGINEERING GROUP

15004 1ST AVENUE S,  
BURNING WOOD, CO 80903  
PHONE: 719.570.1100  
CONTACT: RICHARD L. SCHINDLER, P.E.  
EMAIL: Rich@ceg.com

DATE

DESCRIPTION

NO.

PREPARED FOR:

LORSON, LLC  
212 N. WAHSATCH AVE, SUITE 301  
COLORADO SPRINGS, COLORADO 80903  
(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

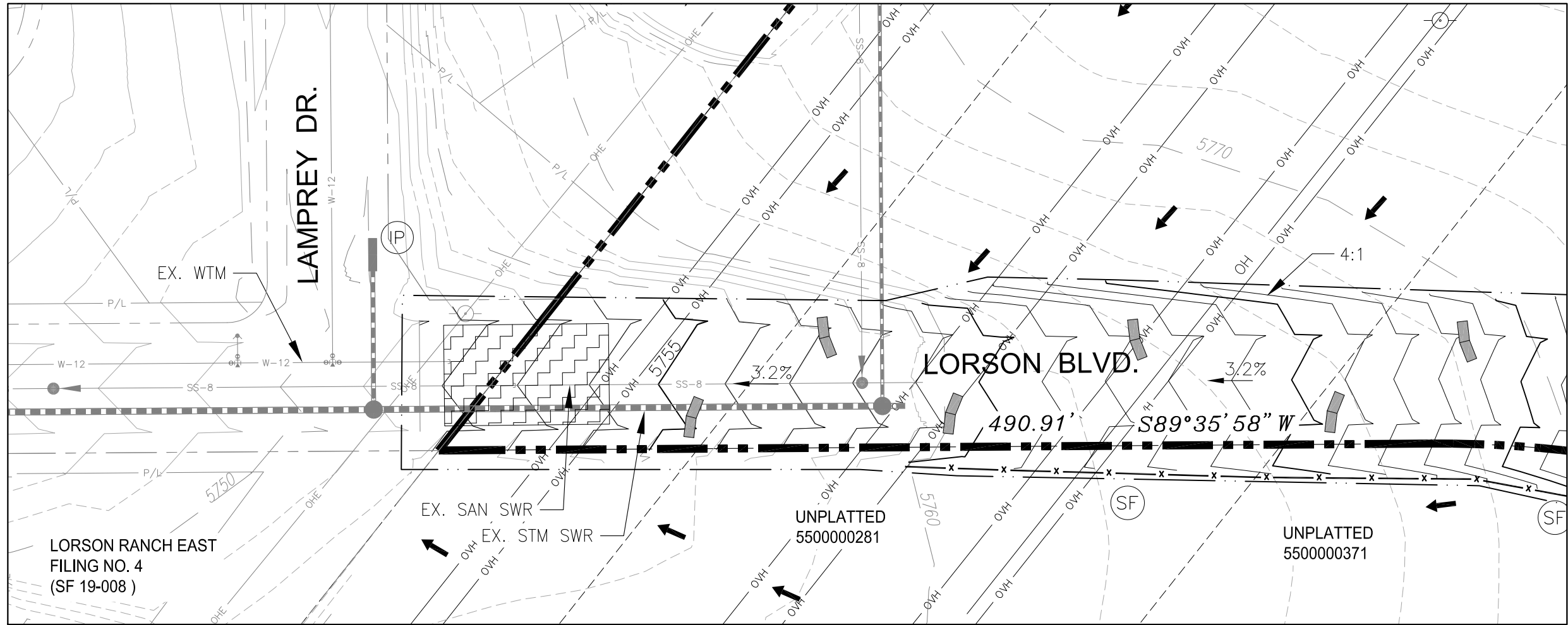
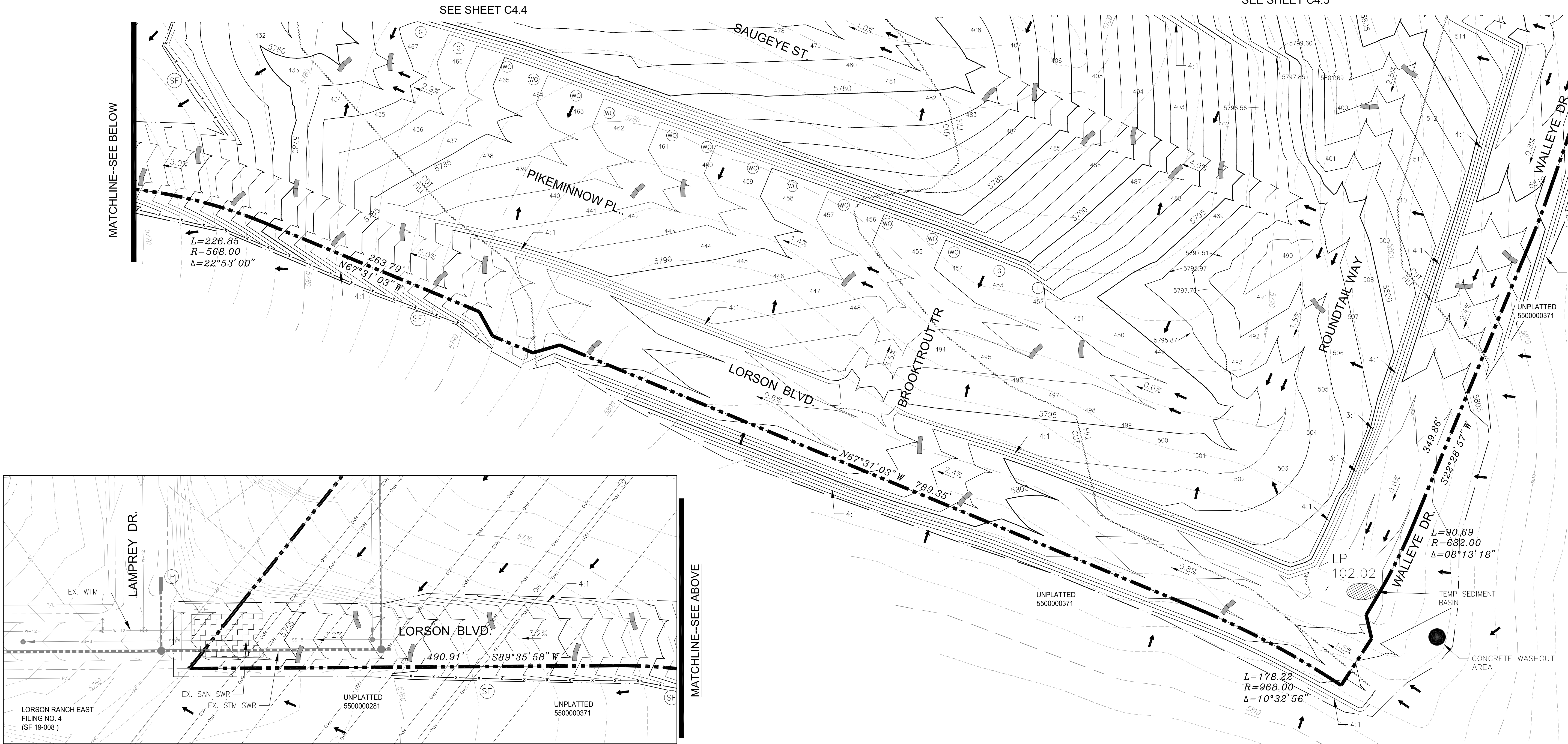
THE HILLS AT LORSON RANCH  
OVERLOT EARLY GRADING AND  
EROSION CONTROL PLAN

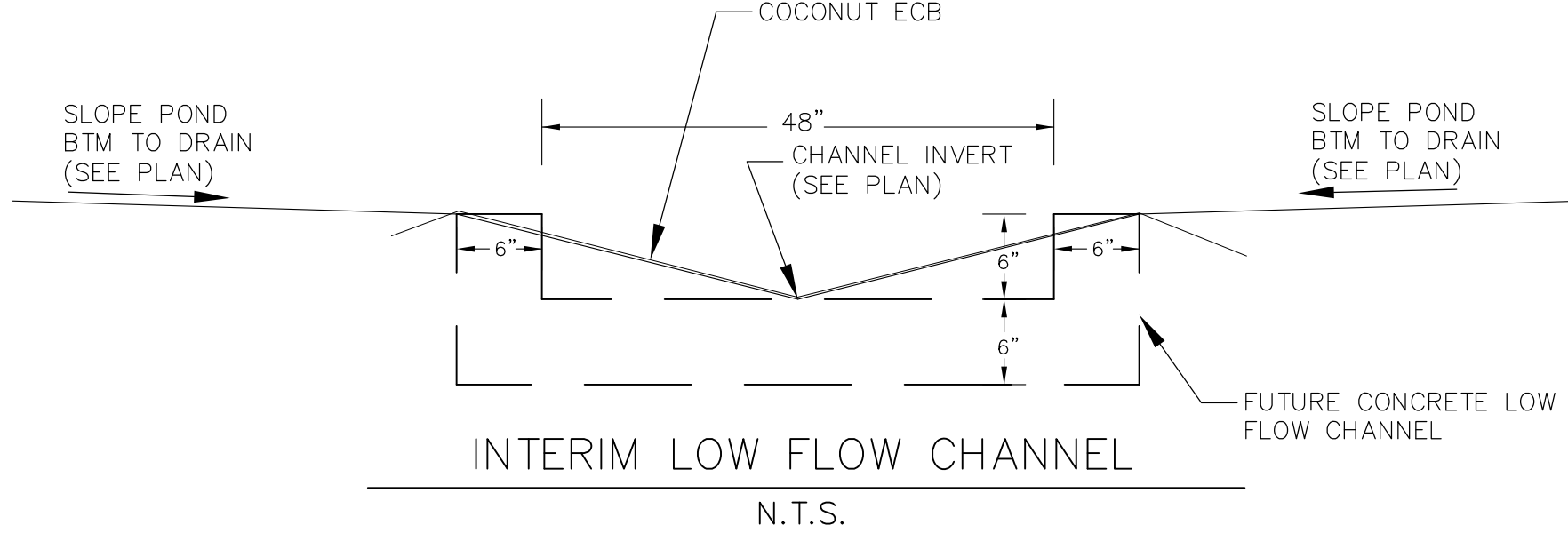
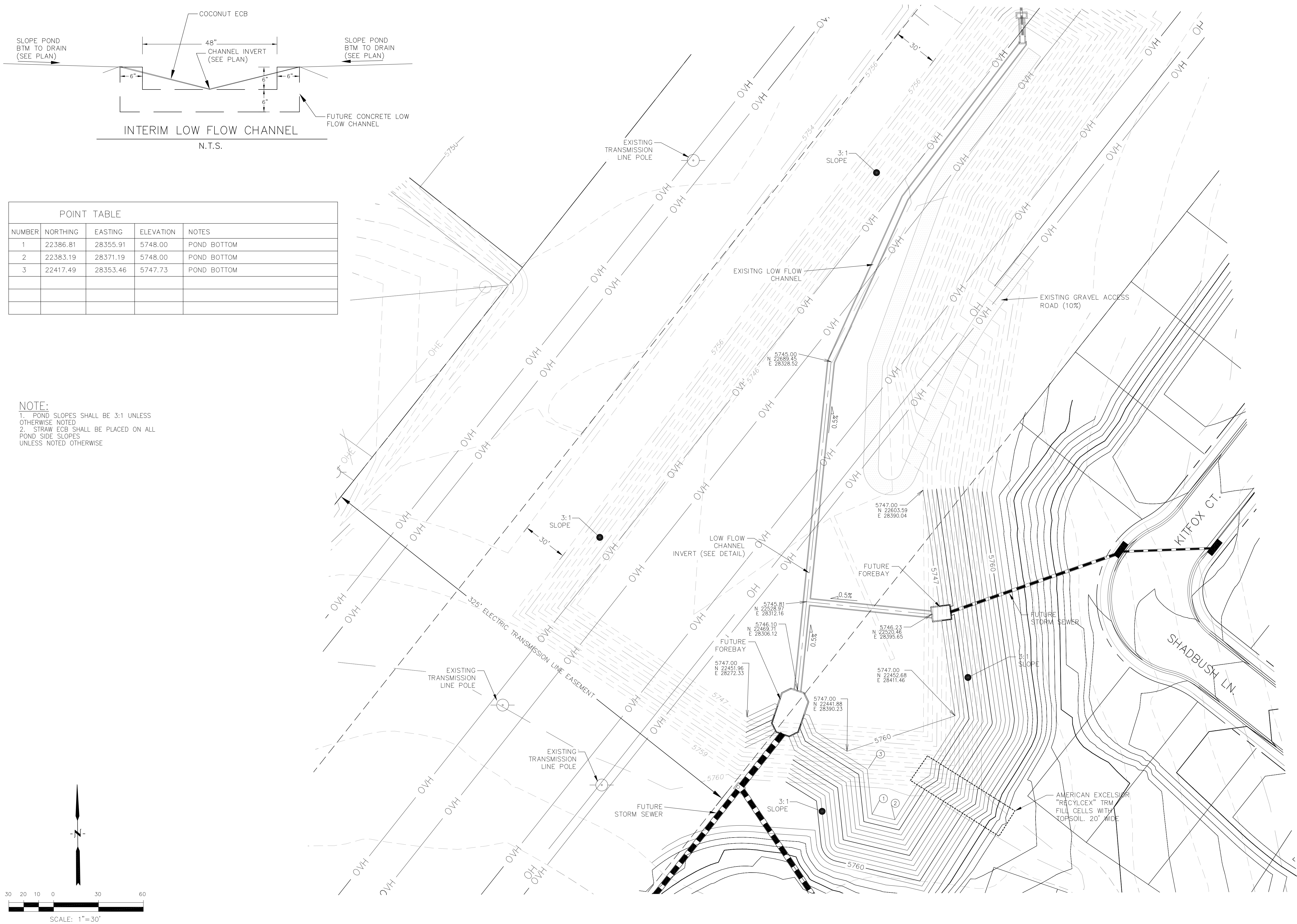
DATE:  
MAY 25, 2020

PROJECT NO.  
100.061

SHEET NUMBER  
C4.6

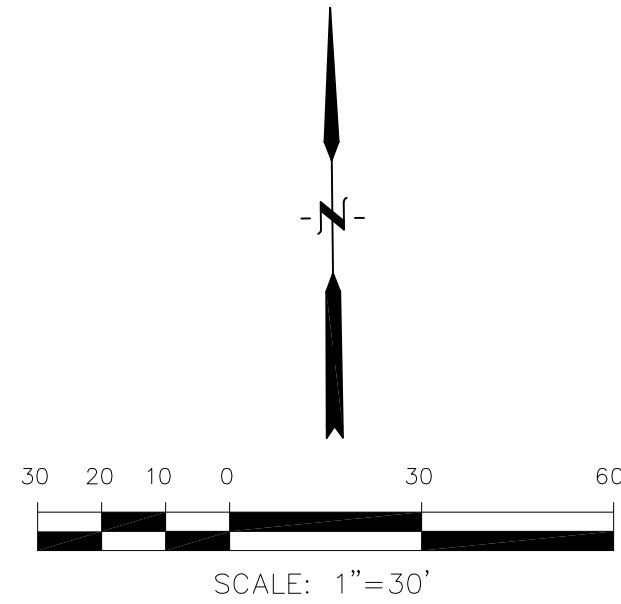
TOTAL SHEETS: 16





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.  
BURNING WOOD, CO 80903  
PHONE: 719.570.1100  
CONTACT: RICHARD L. SCHINDLER, P.E.  
EMAIL: Rich@ceg.com

DATE

DESCRIPTION

NO.

PROJECT:

THE HILLS AT LORSON RANCH

212 N. WAHSATCH AVE. SUITE 301  
COLORADO SPRINGS, COLORADO 80903  
(719) 635-3200  
CONTACT: JEFF MARK

PREPARED FOR:

LORSON, LLC

15004 1ST AVENUE S.  
BURNING WOOD, CO 80903  
PHONE: 719.570.1100  
CONTACT: RICHARD L. SCHINDLER, P.E.  
EMAIL: Rich@ceg.com

DRAWN:

RLS

DESIGNED:

RLS

CHECKED:

RLS

EXISTING POND C1 EXPANSION

POND GRADING AND

TRICKLE CHANNEL

DATE:

MAY 25, 2020

PROJECT NO.

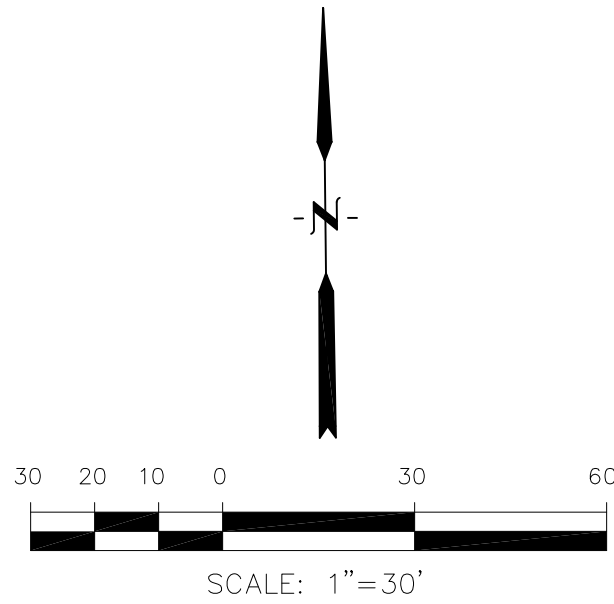
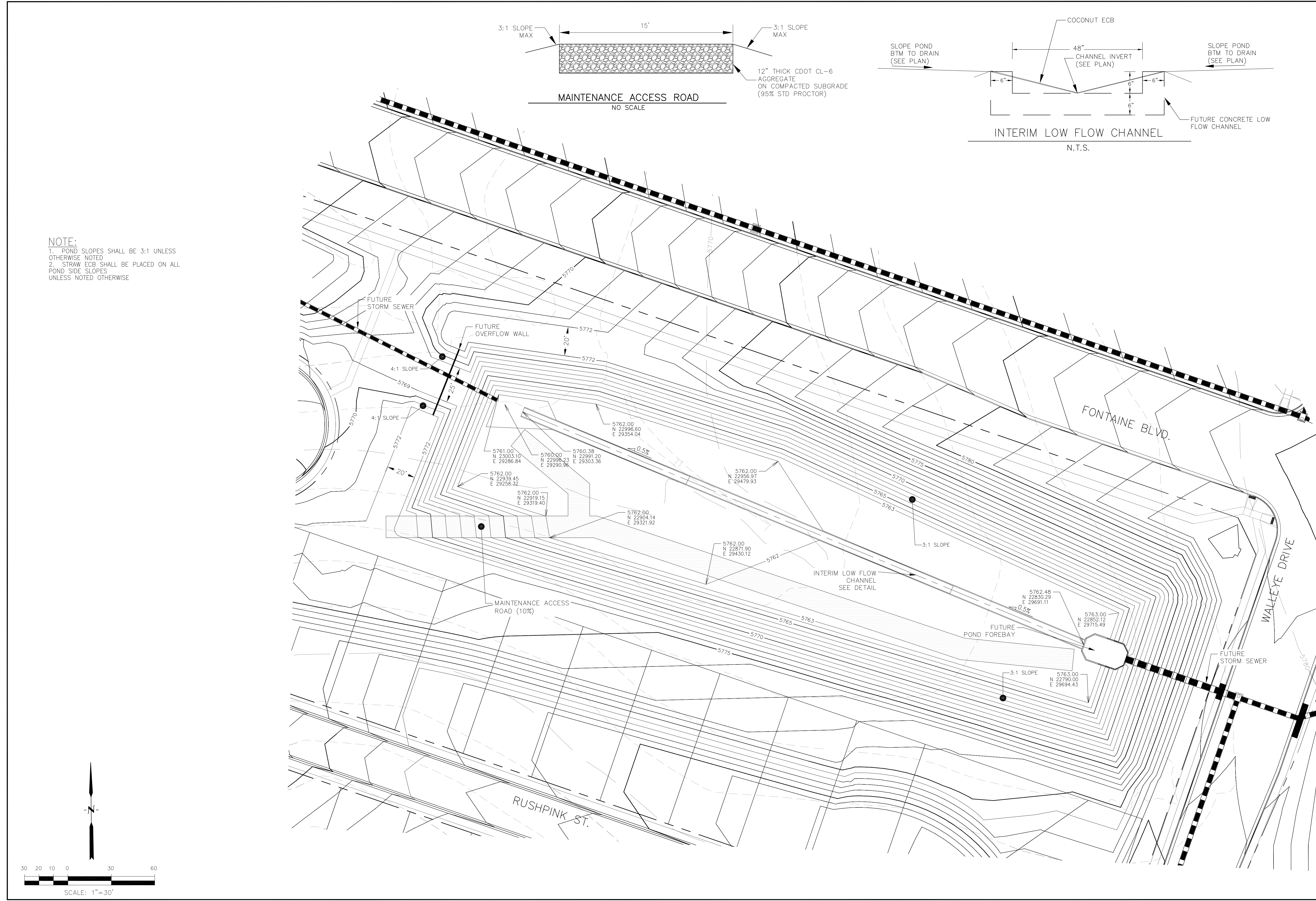
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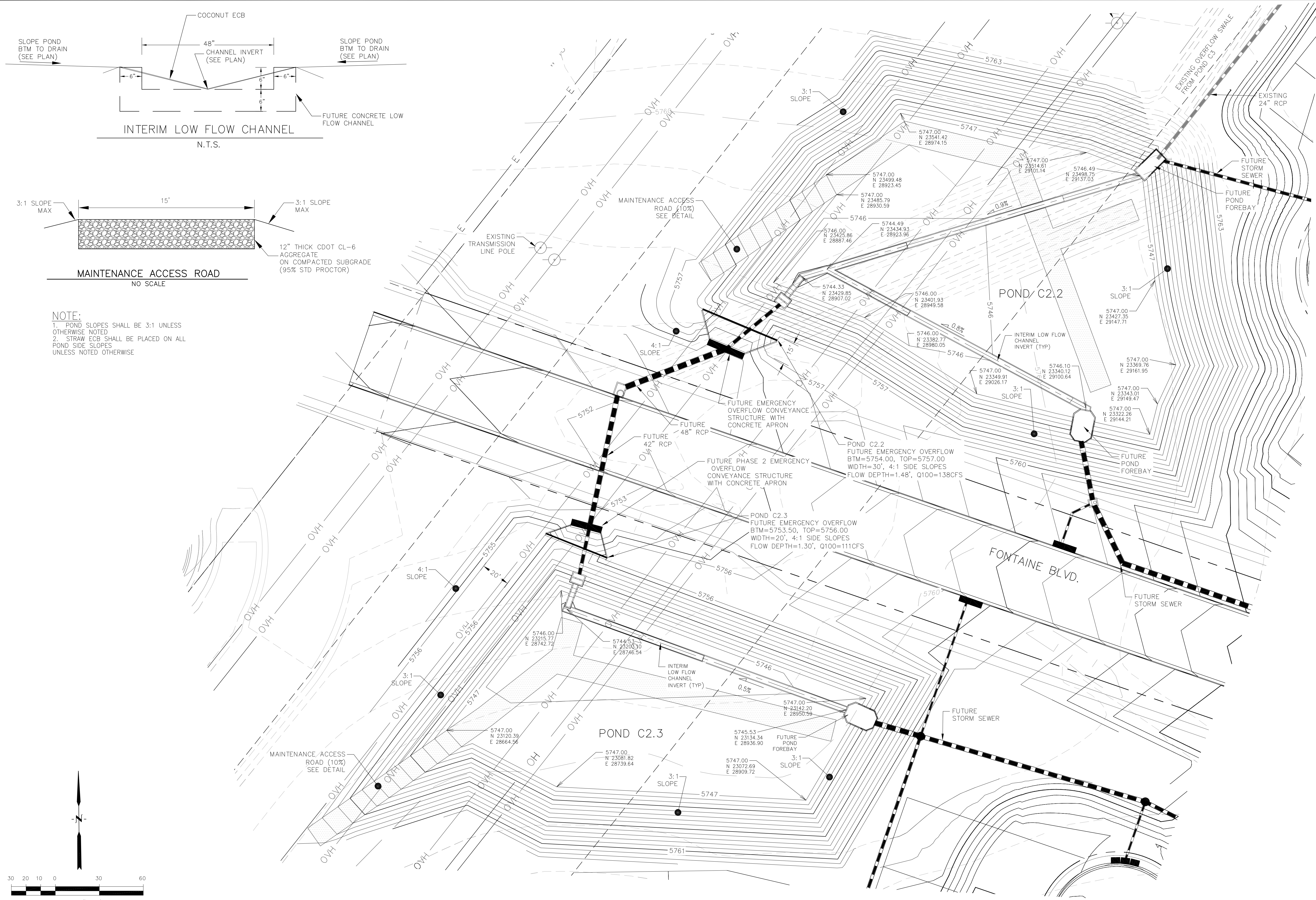
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TOTAL SHEETS: 16



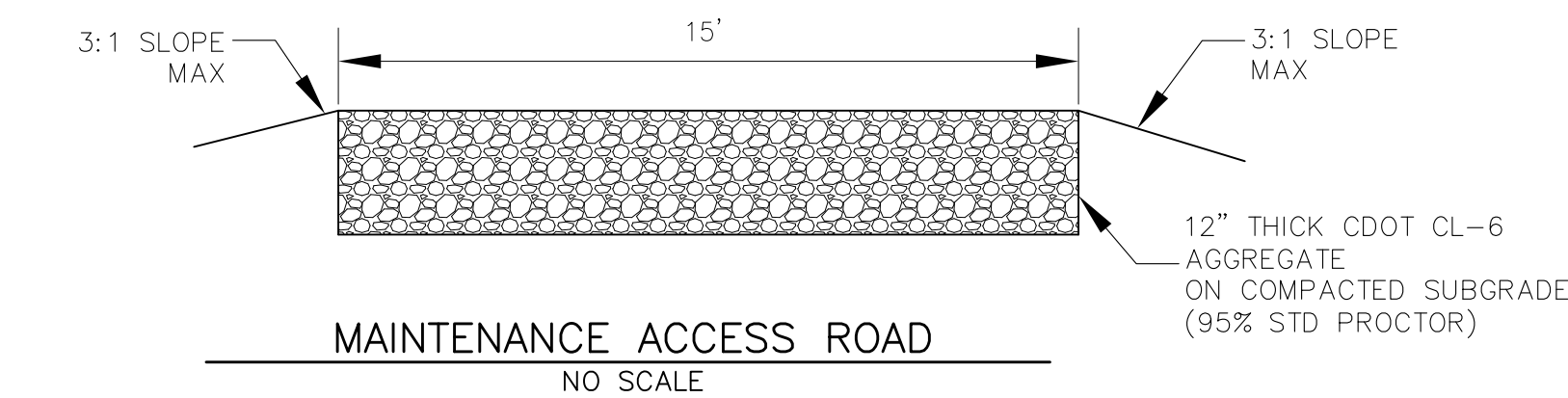


<b>CORE ENGINEERING GROUP</b> 15004 1ST AVENUE S. BURNING WOOD, CO 80903 PHONE: 719.570.1100 CONTACT: RICHARD L. SCHINDLER, P.E. EMAIL: Rich@ceg1.com	
NO. _____ DATE _____ DESCRIPTION _____	PREPARED FOR: <b>LORSON, LLC</b> 212 N. WAHSATCH AVE., SUITE 301 COLORADO SPRINGS, COLORADO 80903 (719) 635-3200 CONTACT: JEFF MARK
DRAWN: RLS DESIGNED: RLS CHECKED: RLS	PROJECT: <b>THE HILLS AT LORSON RANCH</b> FONTAINE BLVD. - WALLEVE DR COLORADO SPRINGS, COLORADO
<b>POND C2.1</b> <b>POND GRADING AND TRICKLE CHANNEL</b>	
DATE: MAY 25, 2020	
PROJECT NO. 100.061	
SHEET NUMBER <b>C5.2</b>	
TOTAL SHEETS: 16	



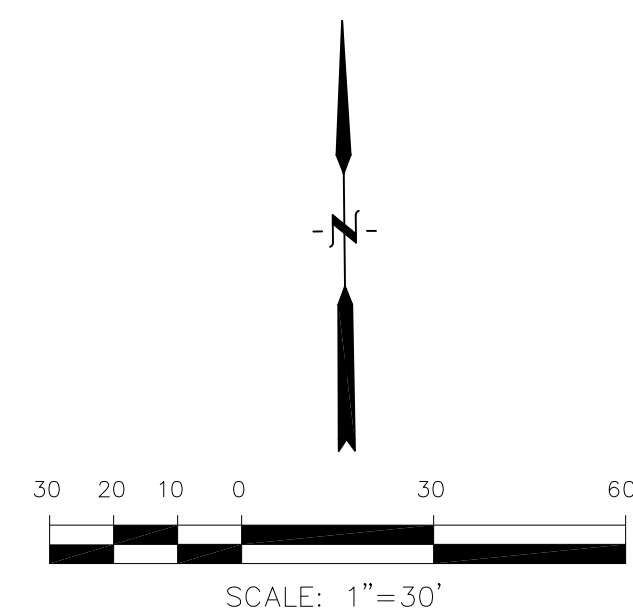
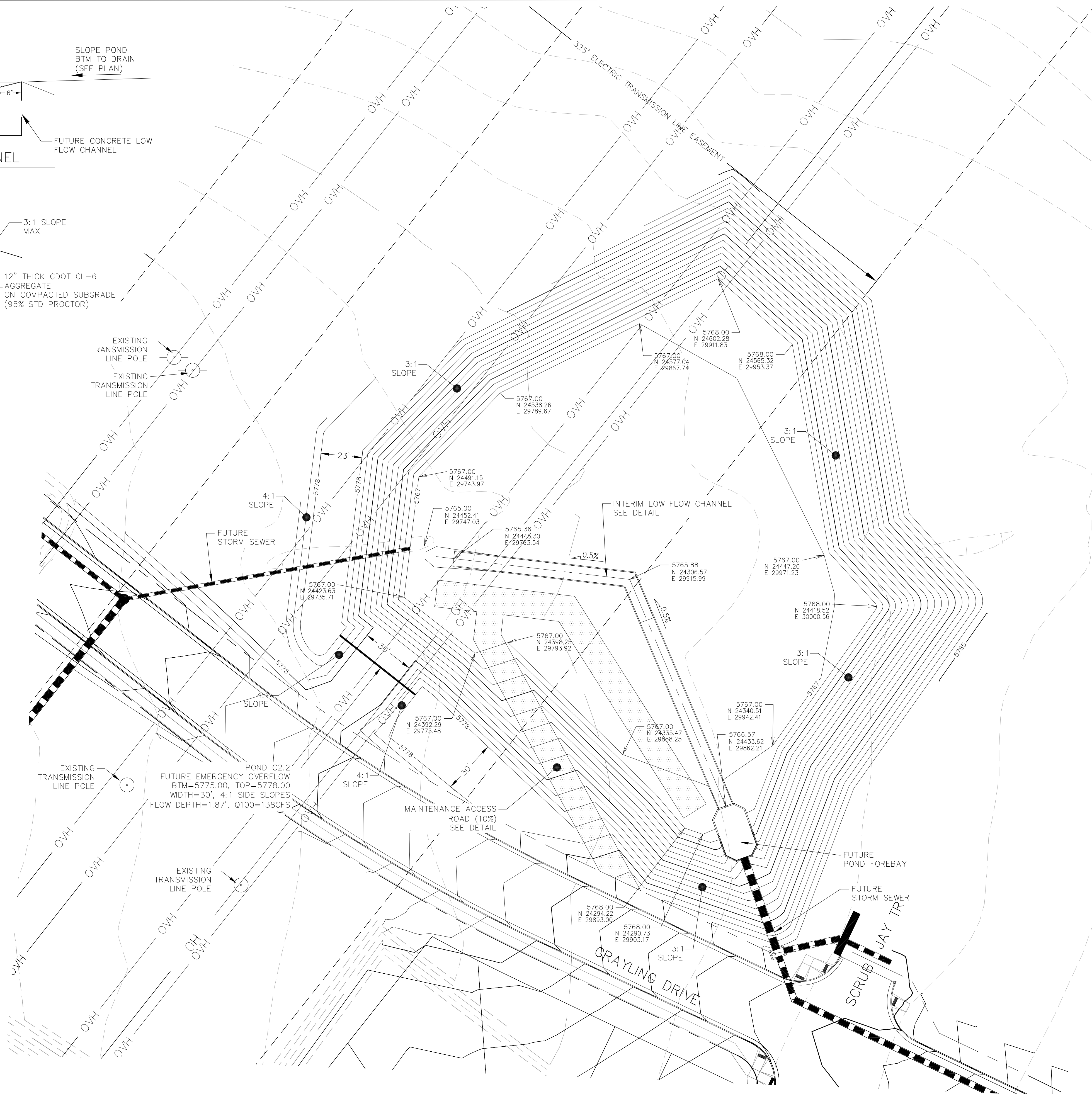
<div><div>POND C2.2 AND POND C2.3</div><div>POND GRADING AND TRICKLE CHANNEL</div></div>		DRAWN: RLS		<div><div>PROJECT:</div><div>THE HILLS AT LORSON RANCH</div><div>FONTAINE BLVD. — WALLEYE DR</div><div>COLORADO SPRINGS, COLORADO</div></div>	<div><div>PREPARED FOR:</div><div>LORSON, LLC</div><div>212 N. WAHSATCH AVE. SUITE 301</div><div>COLORADO SPRINGS, COLORADO 80903</div><div>(719) 635-3200</div><div>CONTACT: JEFF MARK</div></div>	DATE:	
		MAY 25, 2020					
		PROJECT NO.					
		100.061					
		SHEET NUMBER					
C5.3							
TOTAL SHEETS:		16					
		NO.		DESCRIPTION			
				DATE			
<div><div><div><div>CORE</div><div>ENGINEERING GROUP</div><div>15004 1ST AVENUE S.</div><div>DENVER, COLORADO 80202</div><div>PH: 719.570.1100</div><div>CONTACT: RICHARD L. SCHINDLER, P.E.</div><div>EMAIL: Rich@cegi.com</div></div><div></div></div></div>							





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.  
BURNSVILLE, MN 55306  
PH: 719.570.1100  
CONTACT: RICHARD L. SCHINDLER, P.E.  
EMAIL: Rich@ceg1.com

NO.	DESCRIPTION	DATE
PROJECT:		
THE HILLS AT LORSON RANCH		
PREPARED FOR: <b>LORSON, LLC</b> 212 N. WAHSATCH AVE., SUITE 301 COLORADO SPRINGS, COLORADO 80903 (719) 635-3200 CONTACT: JEFF MARK		

DRAWN:	RLS
DESIGNED:	RLS
CHECKED:	RLS

POND C4  
POND GRADING AND  
TRICKLE CHANNEL

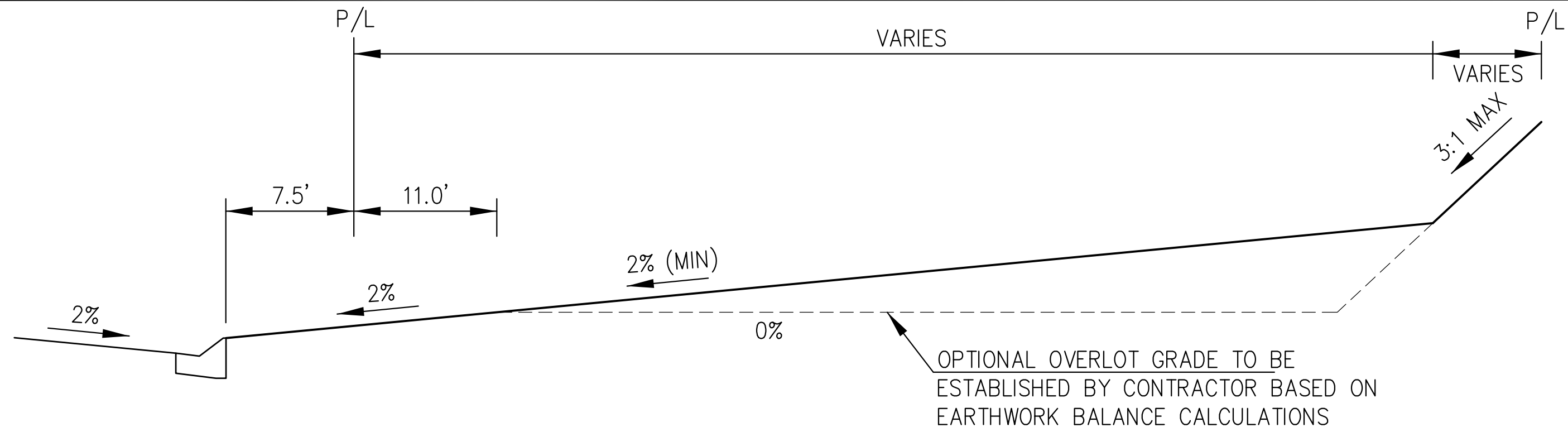
DATE:  
MAY 25, 2020

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100.061

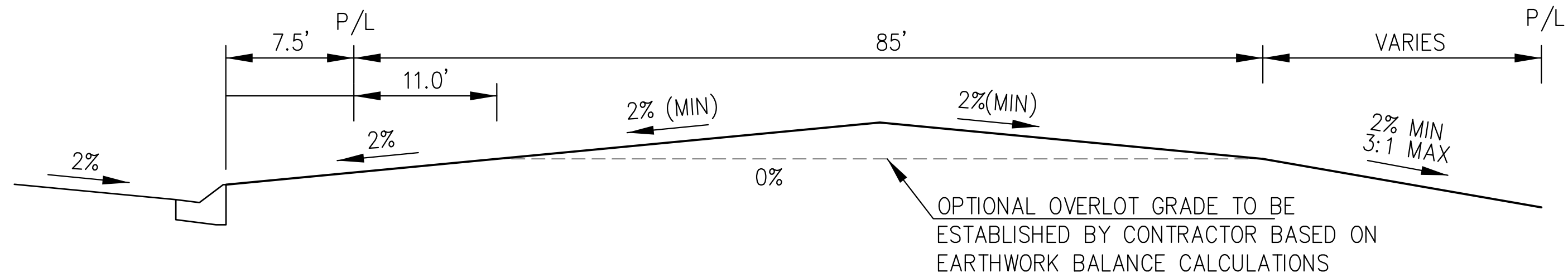
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TOTAL SHEETS: 16

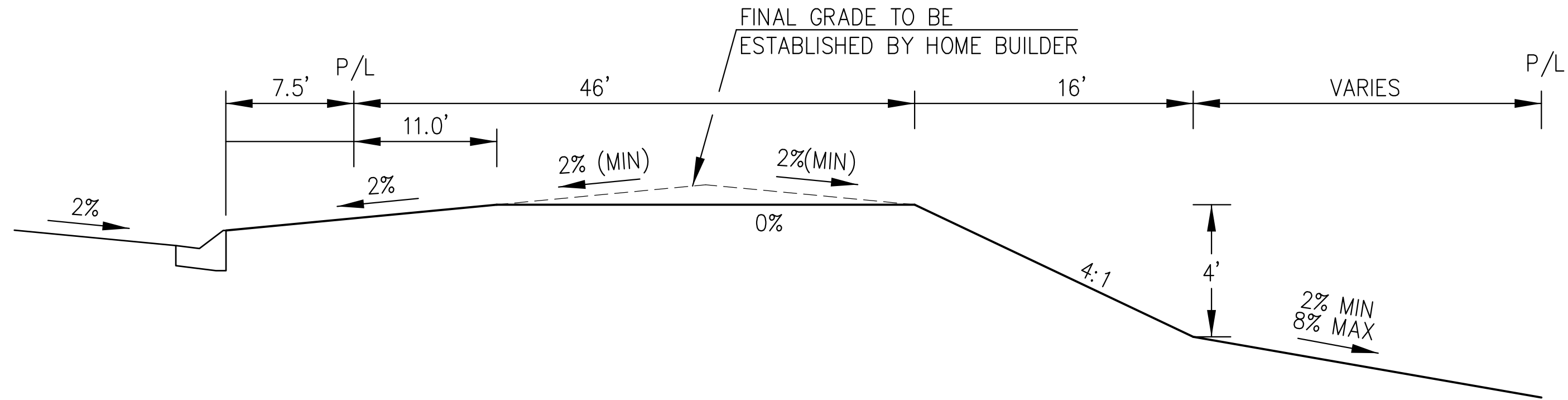




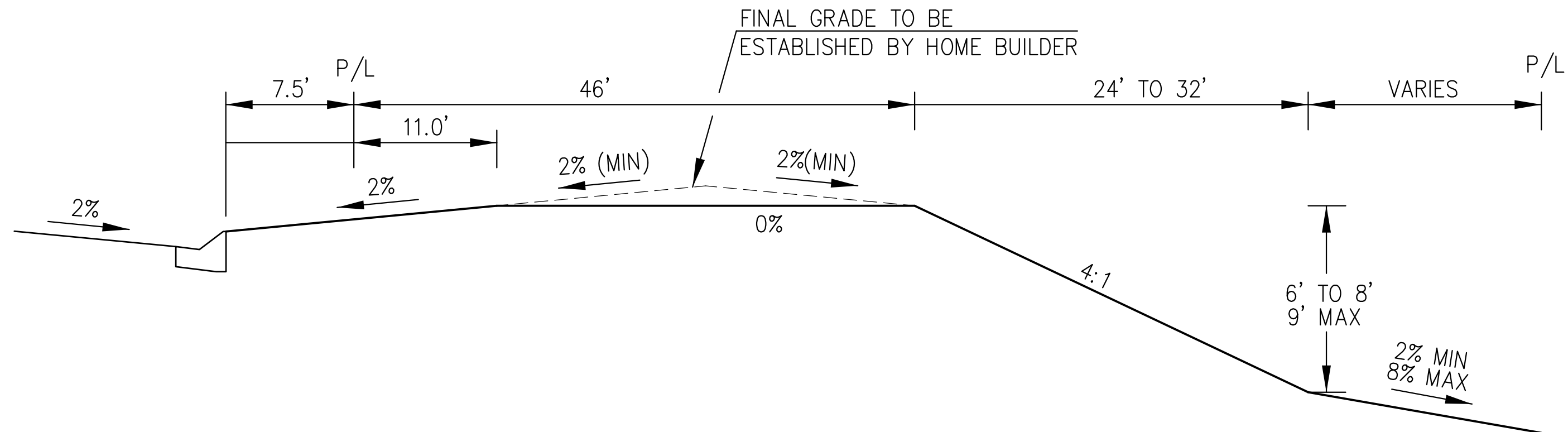
TYPICAL "A" LOT



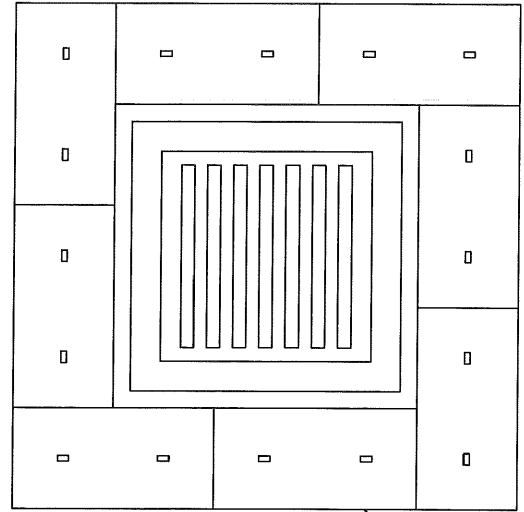
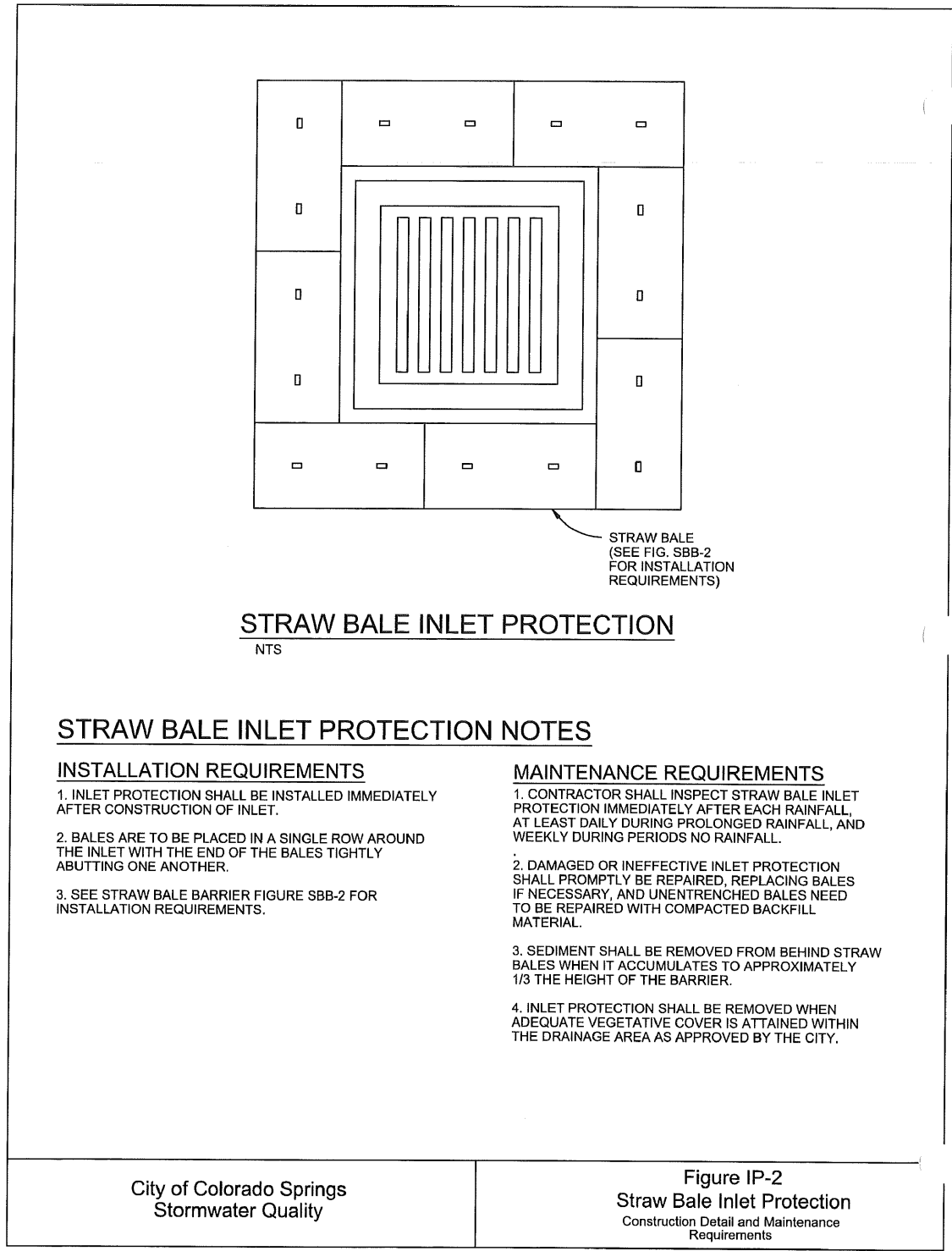
TYPICAL "B" LOT



TYPICAL "GARDEN" LOT



TYPICAL "WALKOUT" LOT



STRAW BALE INLET PROTECTION

STRAW BALE INLET PROTECTION NOTES

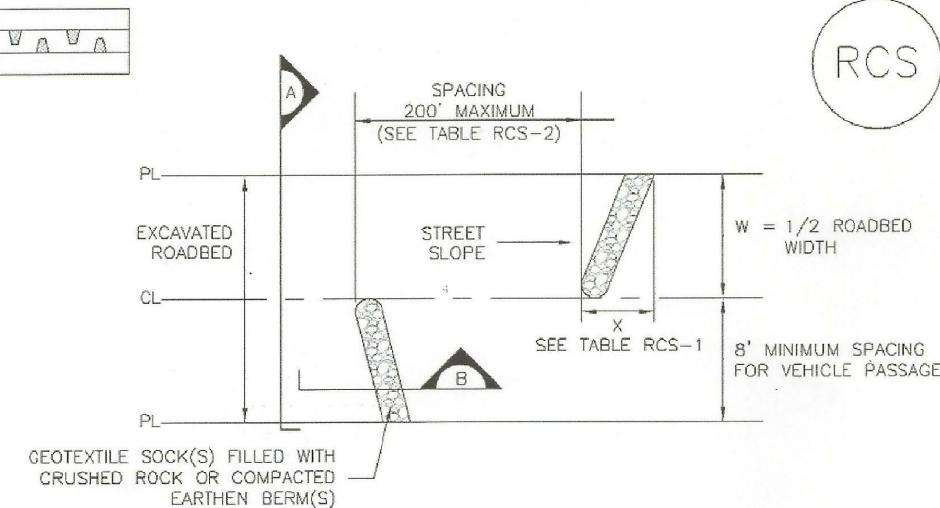
- INSTALLATION REQUIREMENTS**
1. INLET PROTECTION SHALL BE INSTALLED IMMEDIATELY AFTER CONSTRUCTION OF INLET.
  2. BALES ARE TO BE PLACED IN A SINGLE ROW AROUND THE INLET WITH THE END OF THE BALES TIGHTLY ADJUTING ONE ANOTHER.
  3. SEE STRAW BALE BARRIER FIGURE 308-2 FOR INSTALLATION REQUIREMENTS.
- 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 UNINTRENCHED 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

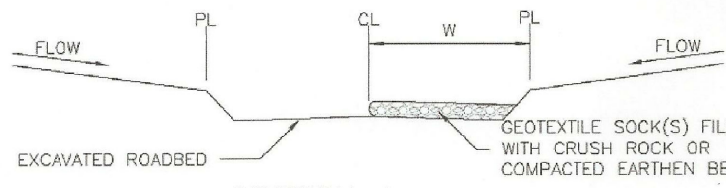
Figure IP-2  
Straw Bale Inlet Protection  
Construction Detail and Maintenance  
Requirements

3-28

EC-9 Rough Cut Street Control (RCS)



ROUGH CUT STREET CONTROL PLAN



SECTION A



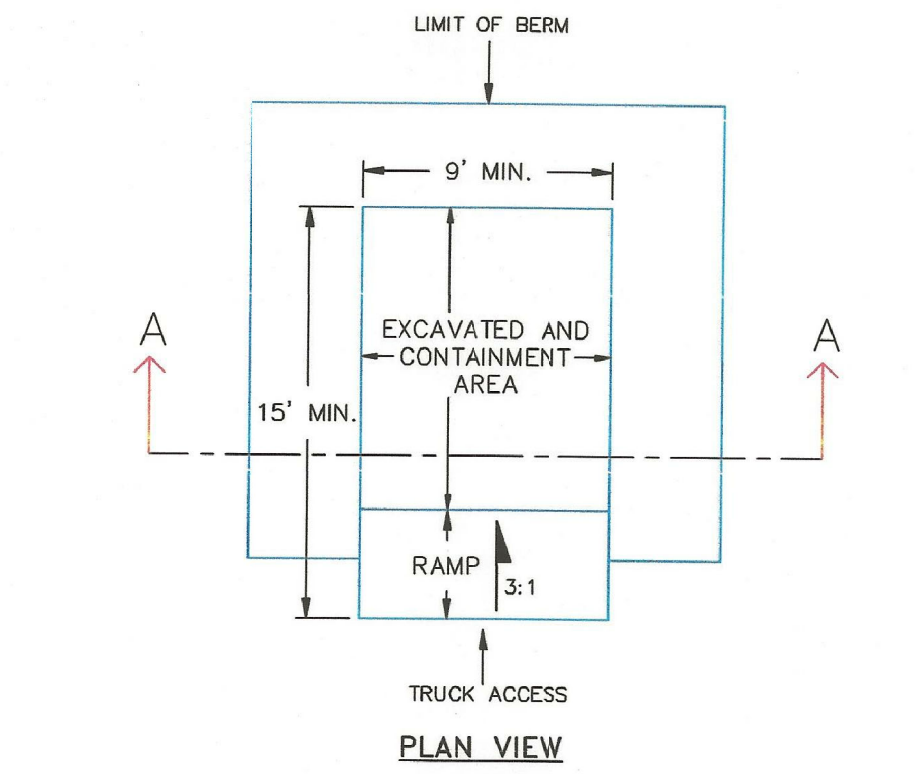
SECTION B

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

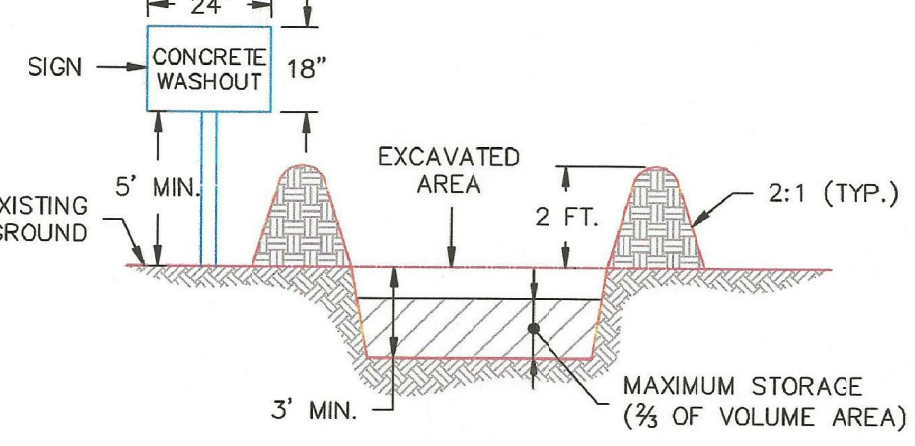
LONGITUDINAL STREET SLOPE (%)	SPACING (FT)
<2	NOT TYPICALLY NEEDED
2	200
3	200
4	150
5	100
6	50
7	25
8	25

RCS-1. ROUGH CUT STREET CONTROL

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



PLAN VIEW



SECTION A-A

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

1/1/08

DATE APPROVED:

John A. McCarty

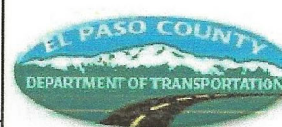
DEPARTMENT OF TRANSPORTATION

Concrete Washout Structure

Standard Drawing

REVISION DATE: 7/17/07

FILE NAME: SD\_3-84



GRADING AND EROSION  
CONTROL DETAILS

DATE:  
MAY 25, 2020

PROJECT NO.  
100.061

SHEET NUMBER  
C12.1

TOTAL SHEETS: 16

**CORE**  
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DATE  
DESCRIPTION  
NO.

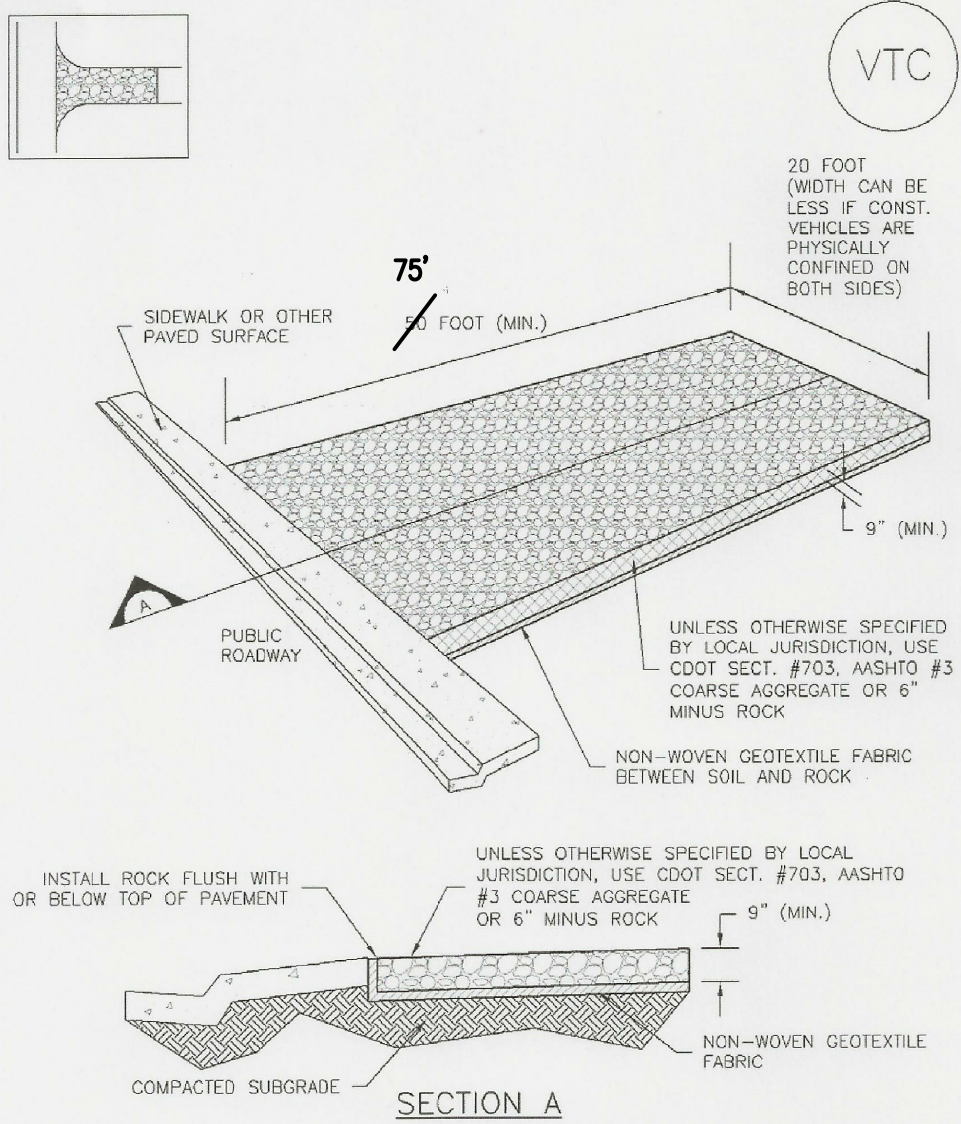
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DESIGNED: RLS  
CHECKED: RLS



## Vehicle Tracking Control (VTC)

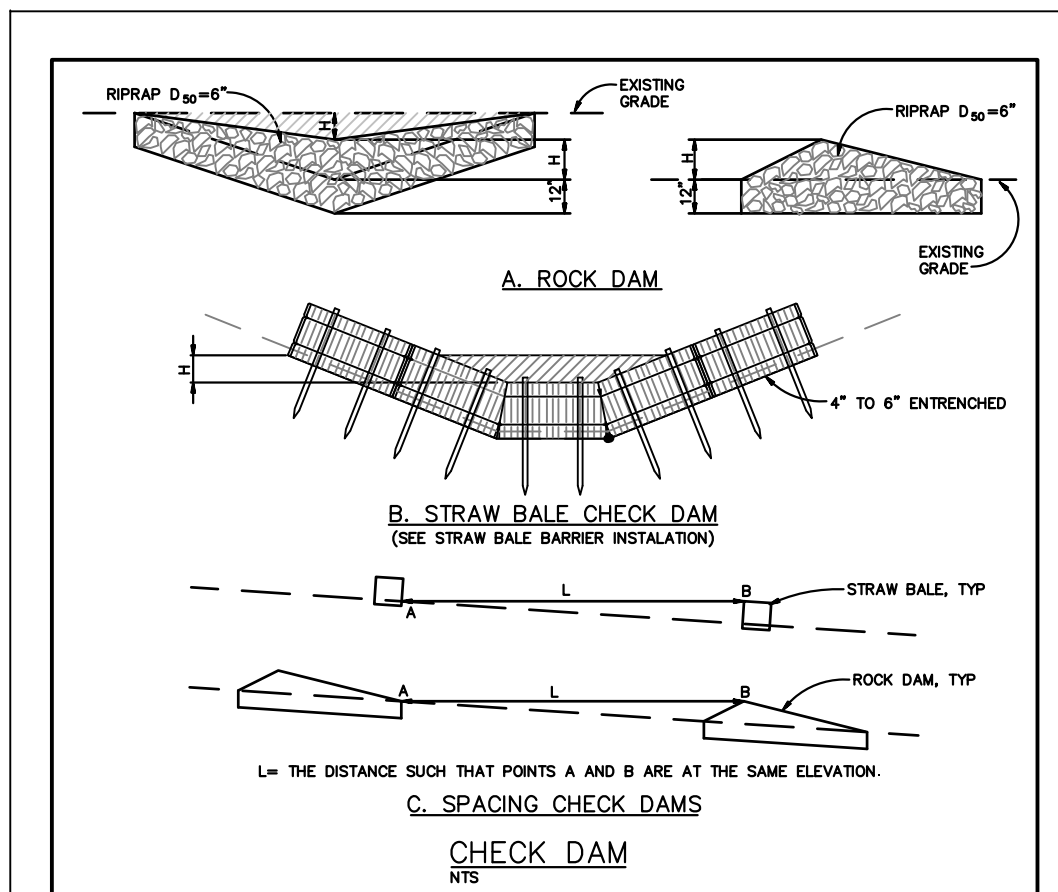
SM-4



VTC-1. AGGREGATE VEHICLE TRACKING CONTROL

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

VTC-3



## INSTALLATION REQUIREMENTS

1. STRAW BALES USED AS CHECK DAMS ARE TO MEET THE REQUIREMENTS STATED IN FIGURE SB8-2.
2. THE "W" DIMENSION SHALL BE SELECTED TO PROVIDE WEIR FLOW CONVEYANCE FOR 2-YEAR FLOW OR GREATER.

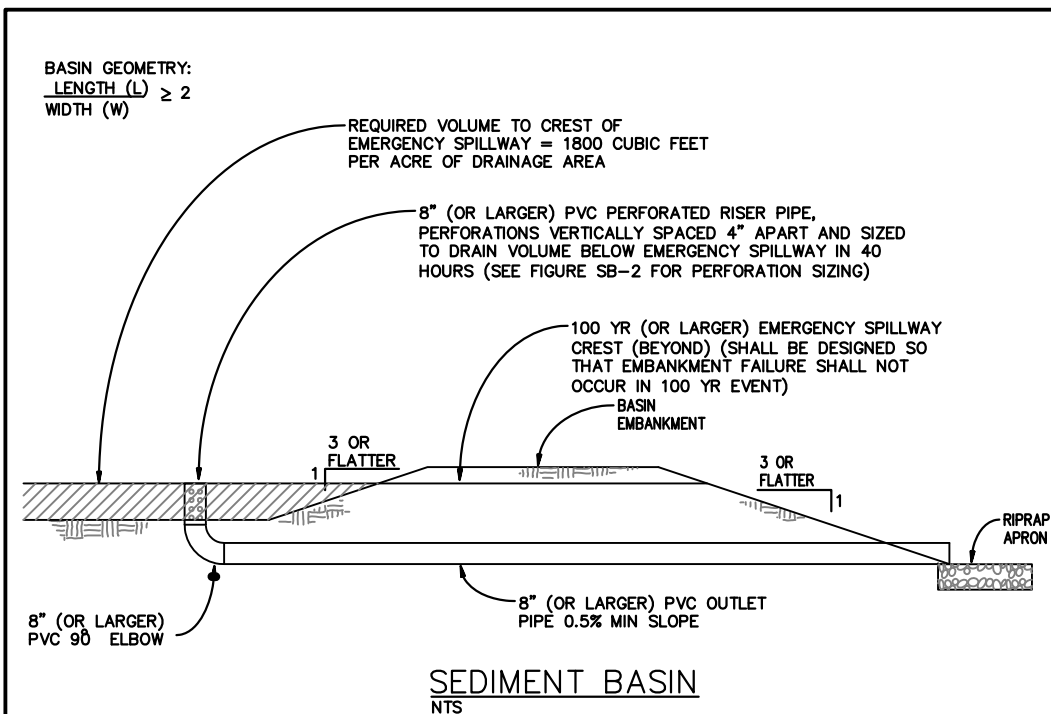
## MAINTENANCE REQUIREMENTS

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

3-20



## 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 15% 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.

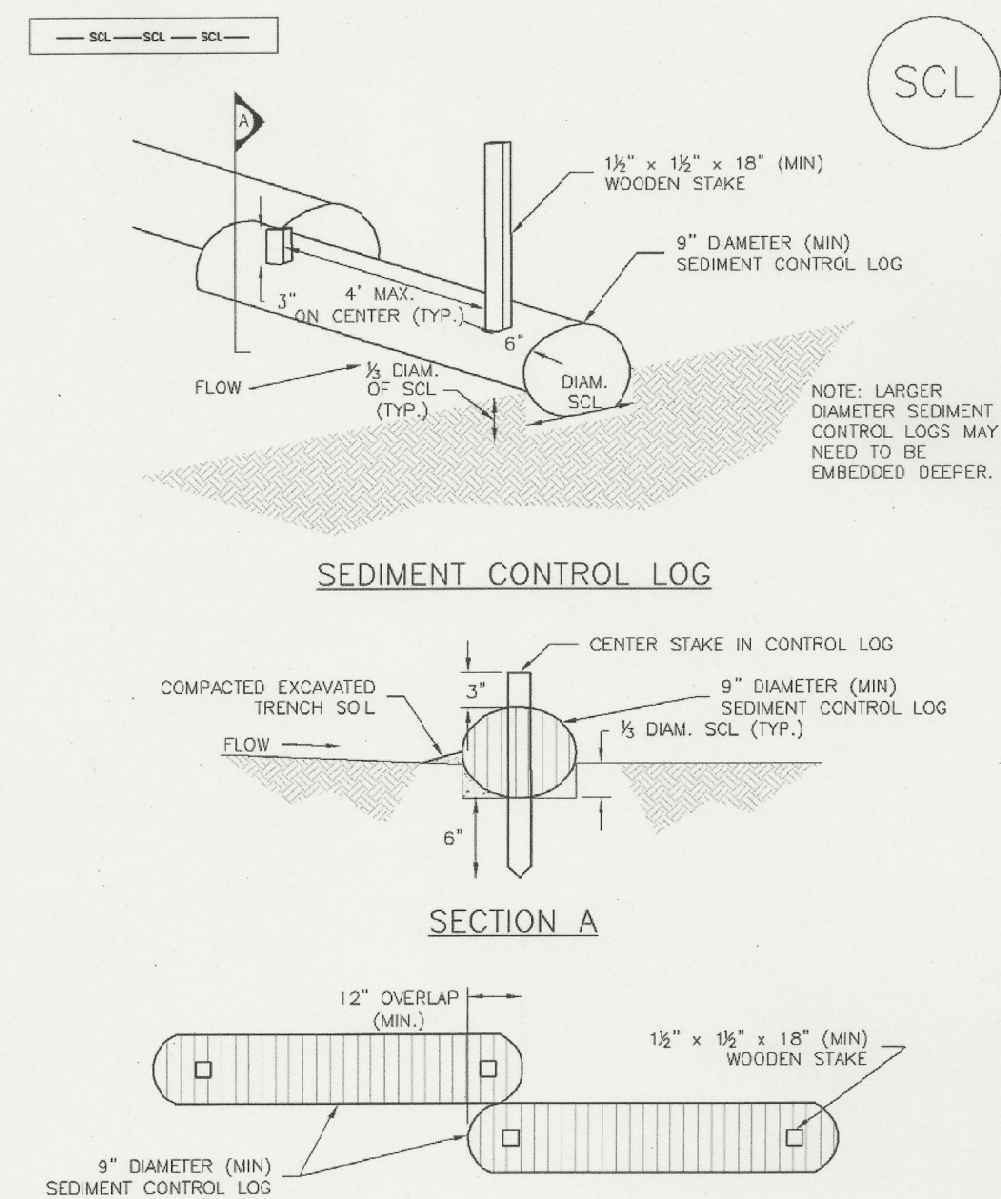
City of Colorado Springs  
Stormwater Quality

Figure SB-1 Sediment Basin  
Construction Detail and Maintenance Requirements

3-32

## 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

GRADING AND EROSION  
CONTROL DETAILS

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THE HILLS AT LORSON  
RANCH  
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EC-2 Temporary and Permanent Seeding (TS/PS)

Table TS/PS-2. Minimum Drill Seeding Rates for Perennial Grasses					
Common <sup>a</sup> Name	Botanical Name	Growth Season <sup>b</sup>	Growth Form	Seeds/ Pound	Pounds of PLS/acre
<b>Alkali Soil Seed Mix</b>					
Alkali secaton	<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
<b>Total</b>					<b>17.75</b>
<b>Fertile Loamy Soil Seed Mix</b>					
Ephrian crested wheatgrass	<i>Agropyron cristatum 'Ephrian'</i>	Cool	Sod	175,000	2.0
Dural hard fescue	<i>Festuca ovina 'durasiacula'</i>	Cool	Bunch	565,000	1.0
Lincoln smooth brome	<i>Bromus inermis leys '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
<b>Total</b>					<b>15.5</b>
<b>High Water Table Soil Seed Mix</b>					
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 leys '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
<b>Total</b>					<b>10.75</b>
<b>Transition Turf Seed Mix<sup>c</sup></b>					
Ruebens Canadian bluegrass	<i>Poa compressa 'Ruebens'</i>	Cool	Sod	2,500,000	0.5
Dural hard fescue	<i>Festuca ovina 'durasiacula'</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 leys 'Lincoln'</i>	Cool	Sod	130,000	3.0
<b>Total</b>					<b>7.5</b>

TS/PS-4 Urban Drainage and Flood Control District  
Urban Storm Drainage Criteria Manual Volume 3 June 2012

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 <sup>b</sup>	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 dropsseed	<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 <sup>d</sup>	<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 <sup>e</sup>	<i>Bouteloua curtipendula 'Vaughn'</i>	Warm	Sod	191,000	2.0	
Lincoln smooth brome	<i>Bromus inermis leys '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	

<sup>a</sup> 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.

<sup>b</sup> See Table TS/PS-3 for seeding dates.

<sup>c</sup> If site is to be irrigated, the transition turf seed rates should be doubled.

<sup>d</sup> Crested wheatgrass should not be used on slopes steeper than 6H to 1V.

<sup>e</sup> Can substitute 0.5 lbs PLS of blue grama for the 2.0 lbs PLS of Vaughn sidecoats grama.

June 2012 Urban Drainage and Flood Control District  
Urban Storm Drainage Criteria Manual Volume 3 TS/PS-5

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 <sup>a</sup> (Common name)	Growth Season <sup>b</sup>	Pounds of Pure Live Seed (PLS)/acre <sup>c</sup>	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

<sup>a</sup> 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.

<sup>b</sup> See Table TS/PS-3 for seeding dates. Irrigation, if consistently applied, may extend the use of cool season species during the summer months.

<sup>c</sup> Seeding rates should be doubled if seed is broadcast, or increased by 50 percent if done using a Brillion Drill or by hydraulic seeding.

June 2012 Urban Drainage and Flood Control District  
Urban Storm Drainage Criteria Manual Volume 3 TS/PS-3

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.

TS/PS-6 Urban Drainage and Flood Control District  
Urban Storm Drainage Criteria Manual Volume 3 June 2012

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