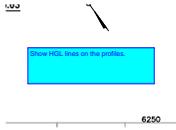


Roadway Plans_V1.pdf Markup Summary

7/14/2022 1:25:26 PM (1)



Subject: Text Box
Page Label: 8
Author: lpackman
Date: 7/14/2022 1:25:26 PM
Status:
Color: ■
Layer:
Space:

Show HGL lines on the profiles.

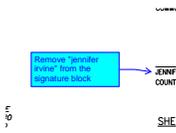
7/14/2022 11:59:44 AM (1)



Subject: Callout
Page Label: 1
Author: lpackman
Date: 7/14/2022 11:59:44 AM
Status:
Color: ■
Layer:
Space:

Revise to PPR-2234

7/14/2022 12:00:12 PM (1)



Subject: Callout
Page Label: 1
Author: lpackman
Date: 7/14/2022 12:00:12 PM
Status:
Color: ■
Layer:
Space:

Remove "jennifer irvine" from the signature block

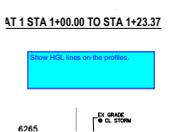
7/14/2022 12:04:10 PM (1)



Subject: Text Box
Page Label: 4
Author: lpackman
Date: 7/14/2022 12:04:10 PM
Status:
Color: ■
Layer:
Space:

Label the size of all inlets and stormpipe on the plan.

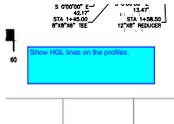
7/14/2022 12:46:57 PM (1)



Subject: Text Box
Page Label: 6
Author: lpackman
Date: 7/14/2022 12:46:57 PM
Status:
Color: ■
Layer:
Space:

Show HGL lines on the profiles.

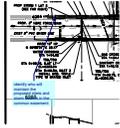
7/14/2022 12:52:00 PM (1)



Subject: Text Box
Page Label: 7
Author: lpackman
Date: 7/14/2022 12:52:00 PM
Status:
Color: ■
Layer:
Space:

Show HGL lines on the profiles.

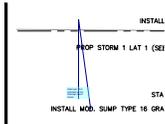
7/18/2022 8:44:27 PM (1)



Subject: Callout
Page Label: 6
Author: Daniel Torres
Date: 7/18/2022 8:44:27 PM
Status:
Color: ■
Layer:
Space:

identify who will maintain the proposed inlets and storm sewers in the common easement

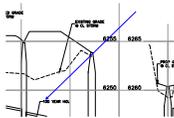
7/18/2022 8:47:01 PM (1)



Subject: Callout
Page Label: 6
Author: Daniel Torres
Date: 7/18/2022 8:47:01 PM
Status:
Color: ■
Layer:
Space:

triple type 16 is indicated on the drainage report. revise.

7/18/2022 8:49:21 PM (1)



Subject: Arrow
Page Label: 6
Author: Daniel Torres
Date: 7/18/2022 8:49:21 PM
Status:
Color: ■
Layer:
Space:

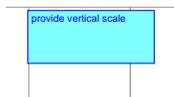
7/18/2022 8:50:09 PM (1)



Subject: Text Box
Page Label: 6
Author: Daniel Torres
Date: 7/18/2022 8:50:09 PM
Status:
Color: ■
Layer:
Space:

Typical at all storm profiles.

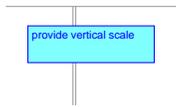
7/18/2022 8:51:57 PM (1)



Subject: Text Box
Page Label: 6
Author: Daniel Torres
Date: 7/18/2022 8:51:57 PM
Status:
Color: ■
Layer:
Space:

provide vertical scale

7/18/2022 8:55:03 PM (1)



Subject: Text Box
Page Label: 7
Author: Daniel Torres
Date: 7/18/2022 8:55:03 PM
Status:
Color: ■
Layer:
Space:

provide vertical scale

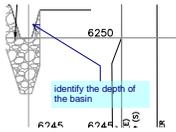
7/18/2022 8:56:50 PM (1)



Subject: Callout
Page Label: 8
Author: Daniel Torres
Date: 7/18/2022 8:56:50 PM
Status:
Color: ■
Layer:
Space:

18" identified on the drainage plan. Revise accordingly.

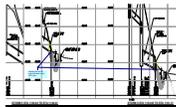
7/18/2022 8:58:14 PM (1)



Subject: Callout
Page Label: 7
Author: Daniel Torres
Date: 7/18/2022 8:58:14 PM
Status:
Color: ■
Layer:
Space:

identify the depth of the basin

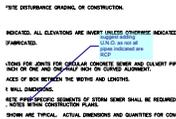
7/18/2022 9:00:41 PM (1)



Subject: Callout
Page Label: 8
Author: Daniel Torres
Date: 7/18/2022 9:00:41 PM
Status:
Color: ■
Layer:
Space:

identify the cut-off wall indicated in the GEC plan

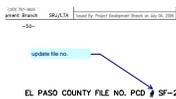
7/18/2022 9:03:31 PM (1)



Subject: Callout
Page Label: 9
Author: Daniel Torres
Date: 7/18/2022 9:03:31 PM
Status:
Color: ■
Layer:
Space:

suggest adding U.N.O. as not all pipes indicated are RCP

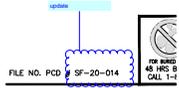
7/18/2022 9:05:35 PM (1)



Subject: Callout
Page Label: 10
Author: Daniel Torres
Date: 7/18/2022 9:05:35 PM
Status:
Color: ■
Layer:
Space:

update file no.

7/18/2022 9:06:09 PM (1)



Subject: Cloud+
Page Label: 12
Author: Daniel Torres
Date: 7/18/2022 9:06:09 PM
Status:
Color: ■
Layer:
Space:

update

7/18/2022 9:09:33 PM (1)



Subject: Callout
Page Label: 14
Author: Daniel Torres
Date: 7/18/2022 9:09:33 PM
Status:
Color: ■
Layer:
Space:

36" indicated on the drainage plan and the storm profile. Revise accordingly

7/19/2022 6:02:25 AM (1)



Subject: Callout
Page Label: 14
Author: Daniel Torres
Date: 7/19/2022 6:02:25 AM
Status:
Color: ■
Layer:
Space:

provide

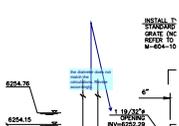
7/19/2022 6:05:44 AM (1)



Subject: Callout
Page Label: 14
Author: Daniel Torres
Date: 7/19/2022 6:05:44 AM
Status:
Color: ■
Layer:
Space:

Does not appear correct. revise accordingly

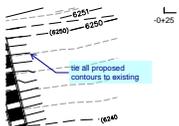
7/19/2022 6:43:53 AM (1)



Subject: Callout
Page Label: 14
Author: Daniel Torres
Date: 7/19/2022 6:43:53 AM
Status:
Color: ■
Layer:
Space:

the diameter does not match the calculations. Revise accordingly.

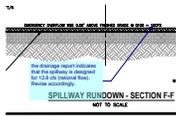
7/19/2022 6:46:45 AM (1)



Subject: Callout
Page Label: 15
Author: Daniel Torres
Date: 7/19/2022 6:46:45 AM
Status:
Color: ■
Layer:
Space:

tie all proposed contours to existing

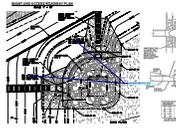
7/19/2022 6:50:10 AM (1)



Subject: Callout
Page Label: 15
Author: Daniel Torres
Date: 7/19/2022 6:50:10 AM
Status:
Color: ■
Layer:
Space:

the drainage report indicates that the spillway is designed for 12.8 cfs (rational flow). Revise accordingly.

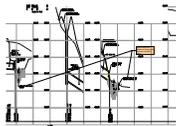
7/19/2022 6:53:18 AM (1)



Subject: Callout
Page Label: 16
Author: Daniel Torres
Date: 7/19/2022 6:53:18 AM
Status:
Color: ■
Layer:
Space:

provide missing info

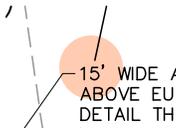
7/20/2022 2:52:05 PM (1)



Subject: Engineer
Page Label: 8
Author: dotprete
Date: 7/20/2022 2:52:05 PM
Status:
Color: ■
Layer:
Space:

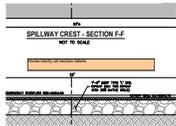
clarify if there is a difference between soil filled and void filled riprap

7/20/2022 2:58:19 PM (1)



Subject: Engineer
Page Label: 16
Author: dotprete
Date: 7/20/2022 2:58:19 PM
Status:
Color: ■
Layer:
Space:

7/20/2022 3:01:09 PM (1)



Subject: Engineer
Page Label: 15
Author: dotprete
Date: 7/20/2022 3:01:09 PM
Status:
Color: ■
Layer:
Space:

revise/clarify all section labels

7/20/2022 3:03:58 PM (1)



Subject: Engineer
Page Label: 15
Author: dotprete
Date: 7/20/2022 3:03:58 PM
Status:
Color: ■
Layer:
Space:

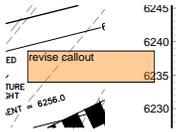
Provide riprap gradation table and note that CDOT Section 506 Requirements apply.

7/20/2022 3:04:23 PM (1)



Subject: Engineer
Page Label: 15
Author: dotprete
Date: 7/20/2022 3:04:23 PM
Status:
Color: ■
Layer:
Space:

7/20/2022 3:04:31 PM (1)



Subject: Engineer
Page Label: 15
Author: dotprete
Date: 7/20/2022 3:04:31 PM
Status:
Color: ■
Layer:
Space:

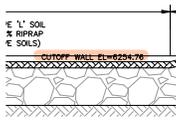
revise callout

7/20/2022 3:16:25 PM (1)



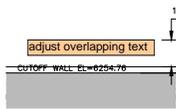
Subject: Engineer
Page Label: 15
Author: dotprete
Date: 7/20/2022 3:16:25 PM
Status:
Color: ■
Layer:
Space:

7/20/2022 3:16:35 PM (1)



Subject: Engineer
Page Label: 15
Author: dotprete
Date: 7/20/2022 3:16:35 PM
Status:
Color: ■
Layer:
Space:

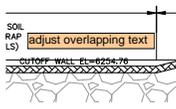
7/20/2022 3:16:54 PM (1)



Subject: Engineer
Page Label: 15
Author: dotprete
Date: 7/20/2022 3:16:54 PM
Status:
Color: ■
Layer:
Space:

adjust overlapping text

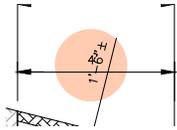
7/20/2022 3:16:59 PM (1)



Subject: Engineer
Page Label: 15
Author: dotprete
Date: 7/20/2022 3:16:59 PM
Status:
Color: ■
Layer:
Space:

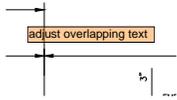
adjust overlapping text

7/20/2022 3:17:11 PM (1)



Subject: Engineer
Page Label: 15
Author: dotprete
Date: 7/20/2022 3:17:11 PM
Status:
Color: ■
Layer:
Space:

7/20/2022 3:17:16 PM (1)



Subject: Engineer
Page Label: 15
Author: dotprete
Date: 7/20/2022 3:17:16 PM
Status:
Color: ■
Layer:
Space:

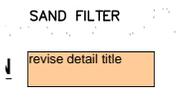
adjust overlapping text

7/20/2022 3:18:16 PM (1)



Subject: Engineer
Page Label: 15
Author: dotprete
Date: 7/20/2022 3:18:16 PM
Status:
Color: ■
Layer:
Space:

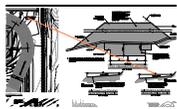
7/20/2022 3:23:45 PM (1)



Subject: Engineer
Page Label: 16
Author: dotprete
Date: 7/20/2022 3:23:45 PM
Status:
Color: ■
Layer:
Space:

revise detail title

7/20/2022 3:24:00 PM (1)



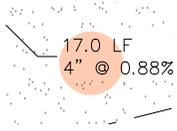
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Page Label: 16
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Date: 7/20/2022 3:24:00 PM
Status:
Color: ■
Layer:
Space:

7/20/2022 3:24:02 PM (1)



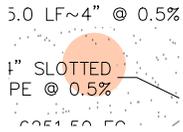
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Page Label: 16
Author: dotprete
Date: 7/20/2022 3:24:02 PM
Status:
Color: ■
Layer:
Space:

7/20/2022 3:25:17 PM (1)



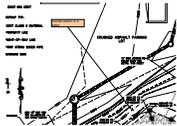
Subject: Engineer
Page Label: 14
Author: dotprete
Date: 7/20/2022 3:25:17 PM
Status:
Color: ■
Layer:
Space:

7/20/2022 3:25:23 PM (1)



Subject: Engineer
Page Label: 14
Author: dotprete
Date: 7/20/2022 3:25:23 PM
Status:
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Layer:
Space:

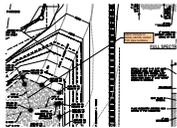
7/20/2022 3:26:59 PM (1)



Subject: Engineer
Page Label: 14
Author: dotprete
Date: 7/20/2022 3:26:59 PM
Status:
Color: ■
Layer:
Space:

provide section A-A detail

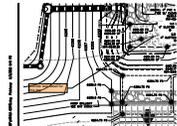
7/20/2022 3:27:38 PM (1)



Subject: Engineer
Page Label: 14
Author: dotprete
Date: 7/20/2022 3:27:38 PM
Status:
Color: ■
Layer:
Space:

adjust linetype to clearly identify slotted PVC pipe locations

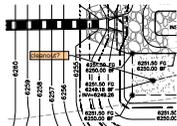
7/20/2022 3:28:44 PM (1)



Subject: Engineer
Page Label: 14
Author: dotprete
Date: 7/20/2022 3:28:44 PM
Status:
Color: ■
Layer:
Space:

provide text detail for this leg

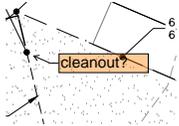
7/20/2022 3:32:51 PM (1)



Subject: Engineer
Page Label: 14
Author: dotprete
Date: 7/20/2022 3:32:51 PM
Status:
Color: ■
Layer:
Space:

cleanout?

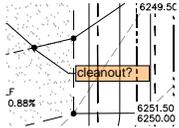
7/20/2022 3:33:02 PM (1)



Subject: Engineer
Page Label: 14
Author: dotprete
Date: 7/20/2022 3:33:02 PM
Status:
Color: ■
Layer:
Space:

cleanout?

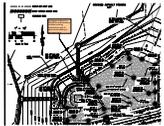
7/20/2022 3:33:08 PM (1)



Subject: Engineer
Page Label: 14
Author: dotprete
Date: 7/20/2022 3:33:08 PM
Status:
Color: ■
Layer:
Space:

cleanout?

7/20/2022 3:33:41 PM (1)



Subject: Engineer
Page Label: 14
Author: dotprete
Date: 7/20/2022 3:33:41 PM
Status:
Color: ■
Layer:
Space:

90 degree cleanout is difficult for maintenance, consider moving cleanouts to end of pipes and installing 3 way tees here

7/20/2022 3:37:22 PM (1)



Subject: Engineer
Page Label: 14
Author: dotprete
Date: 7/20/2022 3:37:22 PM
Status:
Color: ■
Layer:
Space:

Amico 19-SR-2

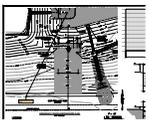
7/20/2022 4:00:13 PM (1)



Subject: Engineer
Page Label: 14
Author: dotprete
Date: 7/20/2022 4:00:13 PM
Status:
Color: ■
Layer:
Space:

Note: The maintenance for a sand filter basin is much more costly than the maintenance for your standard grass bottom EDB. Consider revising the design from a SFB to an EDB

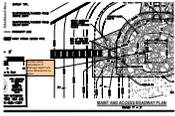
7/20/2022 4:04:57 PM (1)



Subject: Engineer
Page Label: 15
Author: dotprete
Date: 7/20/2022 4:04:57 PM
Status:
Color: ■
Layer:
Space:

include dimensions on plans

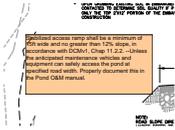
7/20/2022 4:05:25 PM (1)



Subject: Engineer
Page Label: 16
Author: dotprete
Date: 7/20/2022 4:05:25 PM
Status:
Color: ■
Layer:
Space:

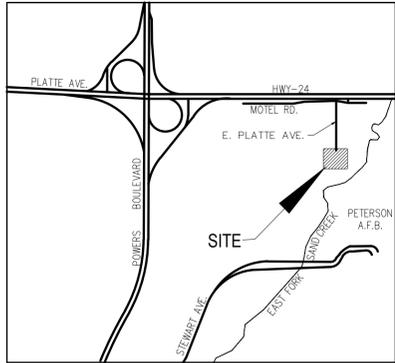
provide sizing calculations in drainage report and show dimensions on plans

7/20/2022 4:27:59 PM (1)



Subject: Engineer
Page Label: 16
Author: dotprete
Date: 7/20/2022 4:27:59 PM
Status:
Color: ■
Layer:
Space:

Stabilized access ramp shall be a minimum of 15ft wide and no greater than 12% slope, in accordance with DCMv1, Chap 11.2.2. --Unless the anticipated maintenance vehicles and equipment can safely access the pond at specified road width. Properly document this in the Pond O&M manual.



VICINITY MAP
N.T.S.

project title corrected

CLEARWAY FILING NO. 2, LOT 5

COUNTY OF EL PASO, STATE OF COLORADO

CONSTRUCTION PLANS

JUNE 2022

AGENCIES:

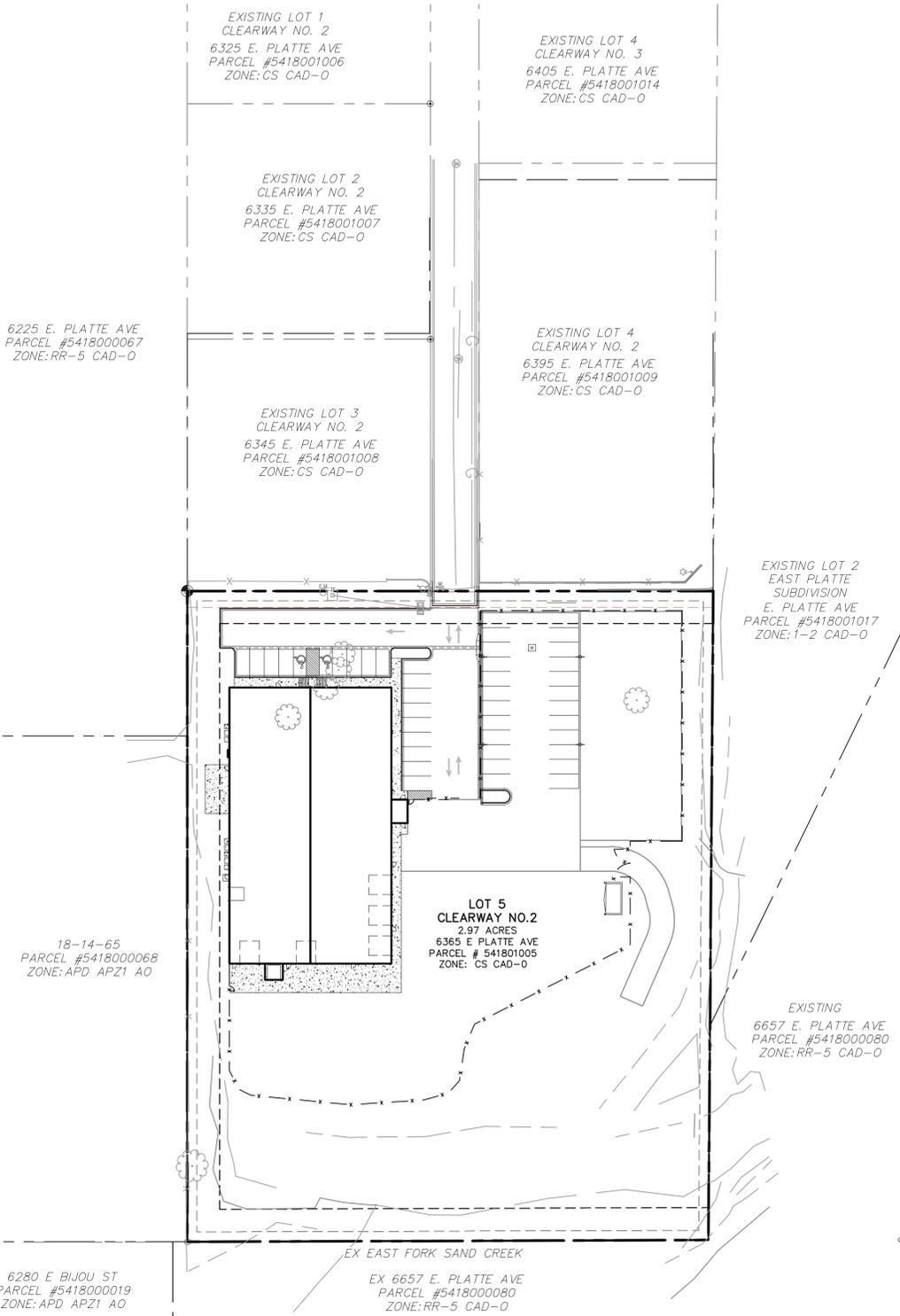
- OWNER:** WRENUT HOME SERVICES
PO BOX 2245
FORT COLLINS, CO 80522
TRENT URBAN (719) 227-0500
- DEVELOPER:** HAMMERS CONSTRUCTION
1411 WOOLSEY HEIGHTS
COLORADO SPRINGS, CO 80915
(719) 570-1599
- CIVIL ENGINEER:** M&S CIVIL CONSULTANTS, INC.
212 N WAHSATCH AVENUE, SUITE 305
COLORADO SPRINGS, CO 80903
VIRGIL A. SANCHEZ P.E. (719) 955-5485
- COUNTY ENGINEERING:** EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT
2880 INTERNATIONAL CIRCLE, SUITE 110
COLORADO SPRINGS, CO 80910
GILBERT LAFORCE, P.E. (719)-520-7945
- TRAFFIC ENGINEERING:** EL PASO COUNTY PUBLIC SERVICES & TRANS. DEPT.
3275 AKERS DRIVE
COLORADO SPRINGS, CO 80922
JENNIFER IRVINE, P.E. (719) 520-6460
- FIRE DISTRICT:** OLMARRON HILLS FIRE DEPARTMENT
1835 TUSKEGEE PLACE
COLORADO SPRINGS, CO 80915
(719) 591-0960
- WATER RESOURCES:** CHEROKEE METRO DISTRICT
6250 PALMER PARK BLVD.
COLORADO SPRINGS, CO 80915
JEFF MUNGER (719) 597-5080
- GAS DEPARTMENT:** COLORADO SPRINGS UTILITIES
7710 DURANT DR.
COLORADO SPRINGS, CO 80947
TIM WENDT (719) 668-3556
- ELECTRIC DEPARTMENT:** MOUNTAIN VIEW ELECTRIC
11140 E. WOODMEN ROAD
FALCON, CO 80831
(719) 495-2283
- COMMUNICATIONS:** QWEST COMMUNICATIONS (U.N.C.C. LOCATORS) (800) 922-1987
AT&T (LOCATORS) (719) 635-3674

BENCHMARKS:

1. FIMS MONUMENT F81, LOCATED ON THE NORTH SIDE OF EAST PLAT AVE. 50' WEST OF FORD STREET. ELEV.=6275.86' (NAVD88)
2. MUELLER BOLT ON HYDRANT FLANGE, HYDRANT LOCATED AT THE SW CORNER OF LOT 3. ELEV.=6265.48' (NAVD88)

BASIS OF BEARINGS

THE EASTERLY LINE OF LOTS 2 AND 3, OF "CLEARWAY NO 2" PLAT NO 10231 OF THE RECORDS OF EL PASO COUNTY, COLORADO, BEING MONUMENTED AT THE SOUTH END BY A 1.5" ALUMINUM CAP STAMPED PLS 38658, FROM WHICH A NAIL & WASHER, EL: 6267.44 BEARS N00°00'00"W, A DISTANCE OF 300.02 FEET.



SITE MAP
N.T.S.

DESIGN ENGINEER'S STATEMENT

THESE DETAILED PLANS AND SPECIFICATIONS WERE PREPARED UNDER MY DIRECTION AND SUPERVISION. SAID PLANS AND SPECIFICATIONS HAVE BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE COUNTY FOR DETAILED ROADWAY, DRAINAGE, GRADING AND EROSION CONTROL PLANS AND SPECIFICATIONS, AND SAID PLANS AND SPECIFICATIONS ARE IN CONFORMITY WITH APPLICABLE MASTER DRAINAGE PLANS AND MASTER TRANSPORTATION PLANS. SAID PLANS AND SPECIFICATIONS MEET THE PURPOSES FOR WHICH THE PARTICULAR ROADWAY AND DRAINAGE FACILITIES ARE DESIGNED AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARATION OF THESE DETAILED PLANS AND SPECIFICATIONS.

VIRGIL A. SANCHEZ, COLORADO P.E. #37160
FOR AND ON BEHALF OF M & S CIVIL CONSULTANTS, INC.

OWNER/DEVELOPER'S STATEMENT:

I, THE DEVELOPER HAVE READ AND WILL COMPLY WITH THE REQUIREMENTS IN THESE DETAILED PLANS AND SPECIFICATIONS.

HAMMERS CONSTRUCTION, INC. DATE

ADDRESS: 1411 WOOLSEY HEIGHTS, COLORADO SPRINGS, CO 80915

EL PASO COUNTY:

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

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

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

name removed

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

SHEET INDEX

SHEET 1	TITLE SHEET
SHEET 2	CONSTRUCTION NOTES & DETAILS
SHEET 3	DEMOLITION PLAN
SHEET 4	STREET IMPROVEMENT PLAN
SHEET 5	STRIPING AND SIGNAGE PLAN
SHEET 6	STORM SEWER PLAN AND PROFILE (STM1, STM1LAT1, STM1LAT2)
SHEET 7	STORM SEWER PLAN AND PROFILE (STM2, STM3)
SHEET 8	STORM SEWER PLAN AND PROFILE (STM4, STM5, STM6)
SHEET 9	STORM SEWER NOTES AND DETAILS
SHEET 10	STORM SEWER DETAILS
SHEET 11	STORM SEWER DETAILS
SHEET 12	STORM SEWER DETAILS
SHEET 13	STORM SEWER DETAILS
SHEET 14	OUTLET STRUCTURE POND 1 DETAILS
SHEET 15	OUTLET STRUCTURE POND 2 DETAILS
SHEET 16	OUTLET STRUCTURE POND 2 DETAILS

Revise to PPR-2234

project number added

EL PASO COUNTY FILE NO. PCD # SF-XX-XXX

CLEARWAY FILING NO. 2, LOT 5		TITLE SHEET	
PROJECT NO. 44-042A		DATE: 06-02-2022	
DESIGNED BY: DLM		SCALE: HORIZONTAL: N/A	
DRAWN BY: CLP		VERTICAL: N/A	
CHECKED BY: DLM		SHEET 1 OF 15	
212 N WAHSATCH AVE, STE 305 COLORADO SPRINGS, CO 80903 PHONE: 719.955.5485		TS01	
FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.			
VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160			
REVISIONS:			
NO.	DATE	BY	DESCRIPTION
THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARE OF THESE PLANS.			
CAUTION			

GENERAL CONSTRUCTION NOTES:

- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXISTENCE AND LOCATION OF ALL UNDERGROUND UTILITIES ALONG THE ROUTE OF THE WORK. THE OMISSION FROM OR THE INCLUSION OF UTILITY LOCATIONS ON THE PLANS IS NOT TO BE CONSIDERED AS THE NONEXISTENCE OF OR A DEFINITE LOCATION OF EXISTING UNDERGROUND UTILITIES.
- THE CONTRACTOR WILL TAKE THE NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES FROM DAMAGE DUE TO THIS OPERATION. ANY DAMAGE TO THE UTILITIES WILL BE REPAIRED AT THE CONTRACTOR'S EXPENSE, AND ANY SERVICE DISRUPTION WILL BE SETTLED BY THE CONTRACTOR.
- ADDITIONAL EROSION CONTROL STRUCTURES MAY BE REQUIRED AT THE TIME OF CONSTRUCTION.
- ALL BACKFILL, SUB-BASE, AND/OR BASE COURSE (CLASS 6) MATERIAL SHALL BE COMPACTED PER THE SOILS ENGINEER'S RECOMMENDATIONS, AND APPROVED BY EL PASO COUNTY PCD.
- ALL STATIONING IS CENTERLINE OF IMPROVEMENTS UNLESS OTHERWISE INDICATED. ALL ELEVATIONS ARE FLOW LINE UNLESS OTHERWISE INDICATED AS TOP BACK OF CURB (TBC), ASPHALT (ASP), OR TOP OF INLET OR BOX (TOB).
- ALL DISTURBED PAVEMENT EDGES SHALL BE CUT TO NEAT LINES. REPAIR SHALL CONFORM TO EPC ECM APPENDIX K - 1.2C.
- ALL INTERSECTION ACCESSES TO BE CONSTRUCTED WITH A 25 FOOT SIGHT VISIBILITY TRIANGLES IS REQUIRED AND THERE SHALL BE NO OBSTRUCTIONS GREATER THAN 18" VERTICAL IN THIS AREA.
- ALL CULVERTS AND STORM DRAIN PIPES SHALL BE SMOOTH INTERIOR CORRUGATED POLYETHYLENE PIPE (HDPE), REINFORCED CONCRETE PIPE (RCP). ALL CULVERTS SHALL BE PLACED COMPLETE WITH FLARED END SECTIONS. ADEQUACY OF MATERIAL THICKNESS FOR ANY CSP INSTALLED SHALL BE VERIFIED BY OWNER'S GEOTECHNICAL ENGINEER TO SUPPORT MINIMUM 50 YEAR DESIGN LIFE. CULVERTS MUST CONFORM TO EPC ECM SECTION 3.32 - CULVERTS.
- ASPHALT THICKNESS AND BASE COURSE THICKNESS (COMPACTED) FOR ROADS SHALL BE PER DESIGN REPORT BY OWNER'S GEOTECHNICAL ENGINEER. OWNER'S GEOTECHNICAL ENGINEER TO BE ON SITE AT THE TIME OF ROAD CONSTRUCTION TO EVALUATE SOIL CONDITIONS AND DETERMINE IF ADDITIONAL MEASURES ARE NECESSARY TO ASSURE STABILITY OF THE NEW ROADS. PAVEMENT DESIGN SHALL BE APPROVED BY EL PASO COUNTY PCD PRIOR TO CONSTRUCTION.

STANDARD NOTES FOR EL PASO COUNTY CONSTRUCTION PLANS

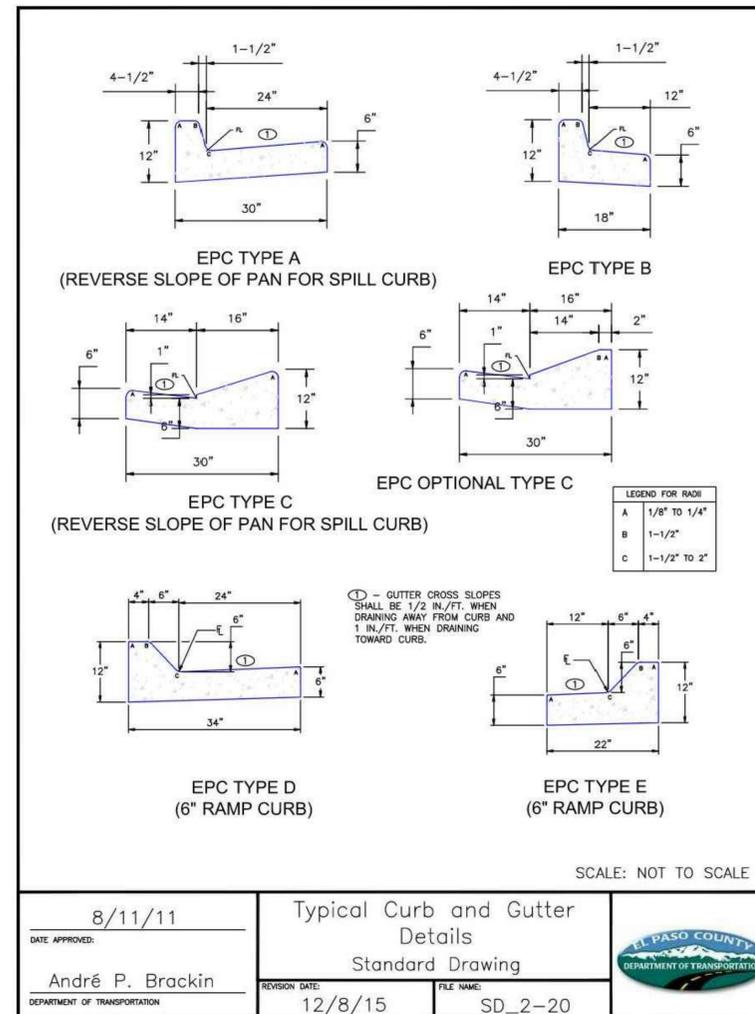
- ALL DRAINAGE AND ROADWAY CONSTRUCTION SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND THE EL PASO COUNTY ENGINEERING CRITERIA MANUAL.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATION AND FIELD NOTIFICATION 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).
- 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:
 - EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM)
 - CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2
 - COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
 - CDOT M & S STANDARDS
- 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.
- 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.
- CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH EL PASO COUNTY PCD - INSPECTIONS, PRIOR TO STARTING CONSTRUCTION.
- 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.
- CONTRACTOR SHALL NOT DEVIATE FROM THE PLANS WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE DESIGN ENGINEER AND PCD. CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY UPON DISCOVERY OF ANY ERRORS OR INCONSISTENCIES.
- ALL STORM DRAIN PIPE SHALL BE CLASS III RCP UNLESS OTHERWISE NOTED AND APPROVED BY PCD.
- 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.
- ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE AT APPROVED CONSTRUCTION ACCESS POINTS.
- 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.
- SIGNING AND STRIPING SHALL COMPLY WITH EL PASO COUNTY DPW AND MUTCD CRITERIA. [IF APPLICABLE, ADDITIONAL SIGNING AND STRIPING NOTES WILL BE PROVIDED.]
- CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRED BY EL PASO COUNTY DPW, INCLUDING WORK WITHIN THE RIGHT-OF-WAY AND SPECIAL TRANSPORT PERMITS.
- 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.

SIGNING AND STRIPING NOTES:

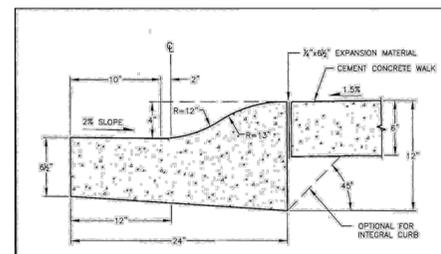
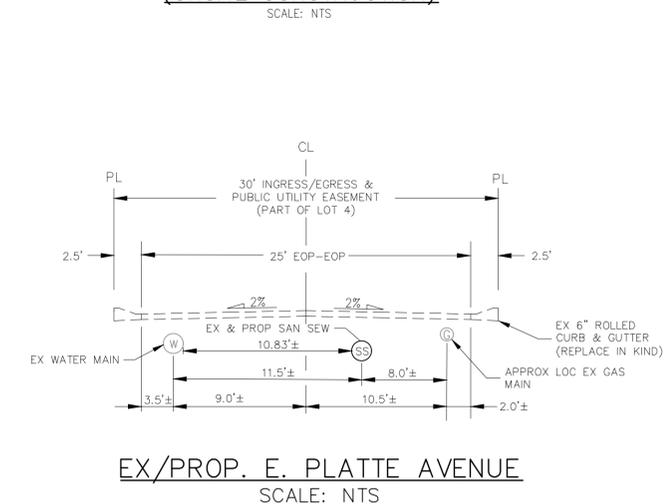
- ALL SIGNS AND PAVEMENT MARKINGS SHALL BE IN COMPLIANCE WITH THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
- REMOVAL OF EXISTING PAVEMENT MARKINGS SHALL BE ACCOMPLISHED BY A METHOD THAT DOES NOT MATERIALLY DAMAGE THE PAVEMENT. THE PAVEMENT MARKINGS SHALL BE REMOVED TO THE EXTENT THAT THEY WILL NOT BE VISIBLE UNDER DAY OR NIGHT CONDITIONS. AT NO TIME WILL IT BE ACCEPTABLE TO PAINT OVER EXISTING PAVEMENT MARKINGS.
- ANY DEVIATION FROM THE STRIPING AND SIGNING PLAN SHALL BE APPROVED BY EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT.
- ALL SIGNS SHOWN ON THE SIGNING AND STRIPING PLAN SHALL BE NEW SIGNS. EXISTING SIGNS MAY REMAIN OR BE REUSED IF THEY MEET CURRENT EL PASO COUNTY AND MUTCD STANDARDS.
- STREET NAME AND REGULATORY STOP SIGNS SHALL BE ON THE SAME POST AT INTERSECTIONS.
- ALL REMOVED SIGNS SHALL BE DISPOSED OF IN A PROPER MANNER BY THE CONTRACTOR.
- ALL STREET NAME SIGNS SHALL HAVE "D" SERIES LETTERS, WITH LOCAL ROADWAY SIGNS BEING 4" UPPER-LOWER CASE LETTERING ON 8" BLANK AND NON-LOCAL ROADWAY SIGNS BEING 6" LETTERING, UPPER-LOWER CASE ON 12" BLANK, WITH A WHITE BORDER THAT IS NOT RECESSED. MULTI-LANE ROADWAYS WITH SPEED LIMITS OF 40 MPH OR HIGHER SHALL HAVE 8" UPPER-LOWER CASE LETTERING ON 18" BLANK WITH A WHITE BORDER THAT IS NOT RECESSED. THE WIDTH OF THE NON-RECESSED WHITE BORDERS SHALL MATCH PAGE 255 OF THE 2012 MUTCD "STANDARD HIGHWAY SIGNS"
- ALL TRAFFIC SIGNS SHALL HAVE A MINIMUM HIGH INTENSITY PRISMATIC GRADE SHEETING.
- ALL LOCAL RESIDENTIAL STREET SIGNS SHALL BE MOUNTED ON A 1.75" X 1.75" SQUARE TUBE SIGN POST AND STUB POST BASE. FOR OTHER APPLICATIONS, REFER TO THE CDOT STANDARD S-614-8 REGARDING USE OF THE P2 TUBULAR STEEL POST SLIPBASE DESIGN.
- ALL SIGNS SHALL BE SINGLE SHEET ALUMINUM WITH 0.100" MINIMUM THICKNESS.
- ALL LIMIT LINES/STOP LINES, CROSSWALK LINES, PAVEMENT LEGENDS, AND ARROWS SHALL BE A MINIMUM 125 MIL THICKNESS PREFORMED THERMOPLASTIC PAVEMENT MARKINGS WITH TAPERED LEADING EDGES PER CDOT STANDARD S-627-1. WORD AND SYMBOL MARKINGS SHALL BE THE NARROW TYPE. STOP BARS SHALL BE 24" IN WIDTH. CROSSWALKS LINES SHALL BE 12" WIDE AND 8' LONG PER CDOT S-627-1.
- ALL LONGITUDINAL LINES SHALL BE A MINIMUM 15MIL THICKNESS EPOXY PAINT. ALL NON-LOCAL RESIDENTIAL ROADWAYS SHALL INCLUDE BOTH RIGHT AND LEFT EDGE LINE STRIPING AND ANY ADDITIONAL STRIPING AS REQUIRED BY CDOT S-627-1.
- THE CONTRACTOR SHALL NOTIFY EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT (719) 520-6819 PRIOR TO AND UPON COMPLETION OF SIGNING AND STRIPING.
- THE CONTRACTOR SHALL OBTAIN A WORK IN THE RIGHT OF WAY PERMIT FROM THE EL PASO COUNTY DEPARTMENT OF PUBLIC WORKS (DPW) PRIOR TO ANY SIGNAGE OR STRIPING WORK WITHIN AN EXISTING EL PASO COUNTY ROADWAY.

SPECIAL NOTE:

THE PARTIES RESPONSIBLE FOR THIS PLAN HAVE FAMILIARIZED THEMSELVES WITH ALL CURRENT ACCESSIBILITY CRITERIA AND SPECIFICATIONS AND THE PROPOSED PLAN REFLECTS ALL SITE ELEMENTS REQUIRED BY THE APPLICABLE ADA DESIGN STANDARDS AND GUIDELINES AS PUBLISHED BY THE UNITED STATES DEPARTMENT OF JUSTICE. APPROVAL OF THIS PLAN BY EL PASO COUNTY DOES NOT ASSURE COMPLIANCE WITH THE ADA OR ANY REGULATIONS OR GUIDELINES ENACTED OR PROMULGATED UNDER OR WITH RESPECT TO SUCH LAWS.



TYPICAL CURB AND GUTTER DETAIL (SD 2-20C) (ONSITE CONSTRUCTION)



EX/PROP. ROLLED CURB AND GUTTER (MATCH IN KIND)
 SCALE: NTS

FOR LOCATING & MARKING GAS, ELECTRIC, WATER & TELEPHONE LINES

FOR BURIED UTILITY INFORMATION 48 HRS BEFORE YOU DIG CALL 1-800-922-1987

CLEARWAY FILING NO. 2, LOT 5

CONSTRUCTION NOTES AND DETAILS

PROJECT NO. 44-042A DATE: 06-02-2022

SCALE: HORIZONTAL: N/A VERTICAL: N/A

DESIGNED BY: DLM DRAWN BY: CLP CHECKED BY: DLM

210 N. WAHATCH AVE., STE 305 COLORADO SPRINGS CO 80903 PHONE 719.555.5485

CIVIL CONSULTANTS, INC.

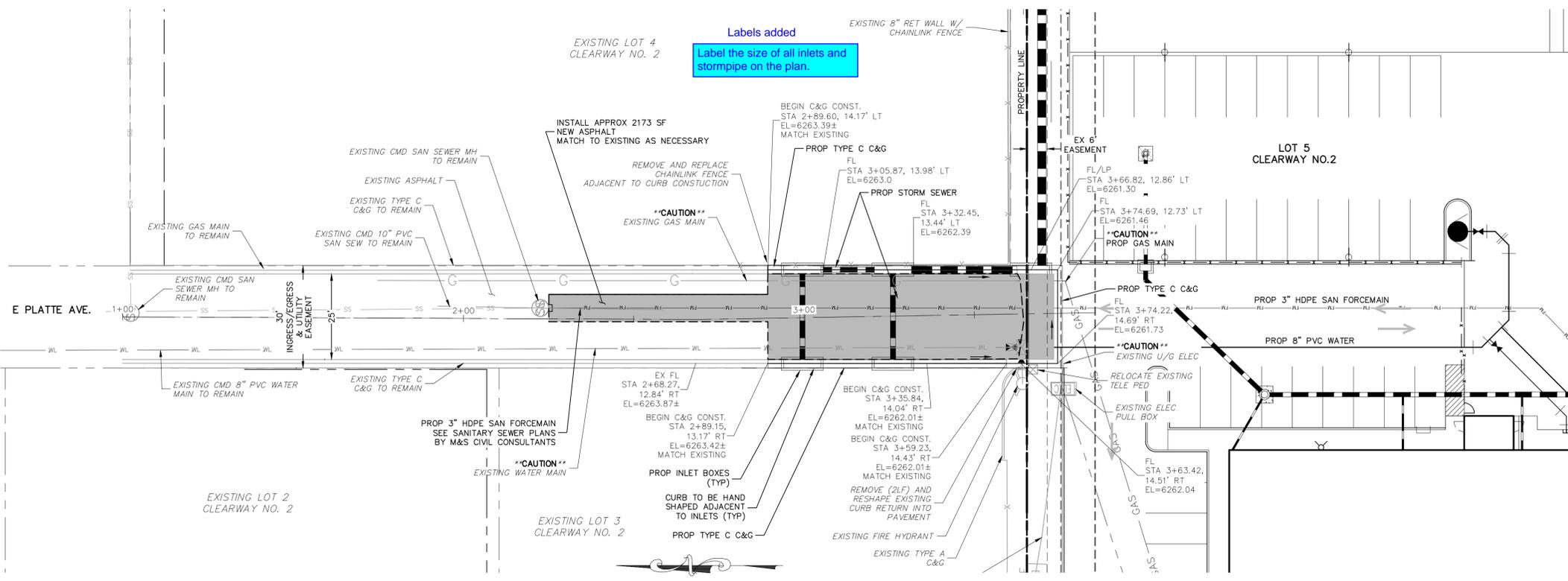
FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.

VIRGIL A. SANCHEZ, COLORADO P.E. NO. 371160

NO. DATE: BY: DESCRIPTION: DATE: BY: DESCRIPTION:

THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARE OF THESE PLANS.

CAUTION



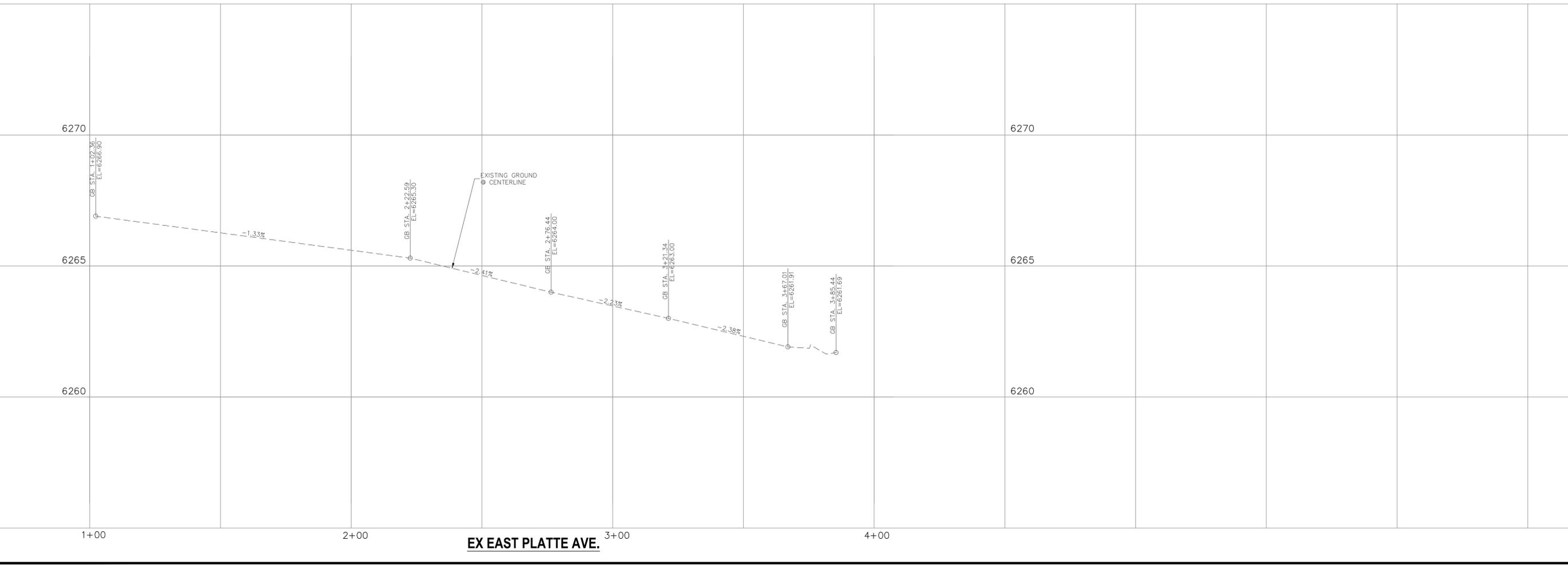
ABBREVIATION LEGEND

CL	CENTERLINE INTERSECTION	LT	LEFT FLOWLINE
FL-FL	BEGIN FLOWLINE INTERSECTION	RT	RIGHT FLOWLINE
BT	END TRANSITION	TBC	TOP BACK OF CURB
PC	POINT OF CURVE	XPAN	CROSSSPAN
PCC	POINT OF COMPOUND CURVE	STD	STANDARD SHEET
PCR	POINT OF CURB RETURN	P&P	PLAN AND PROFILE
PRC	POINT OF REVERSE CURVE	C&G	CURB AND GUTTER
PT	POINT OF TANGENT	W	WEST
EL	ELEVATION	E	EAST
CDS	CUL-DE-SAC	ROW	RIGHT OF WAY
KN	KNUCKLE	EOP	EDGE OF PAVEMENT
LP	LOW POINT	WTR	WATER
N	NORTH	SAN	SANITARY SEWER
S	SOUTH	PVT	PRIVATE WATER VALVE
HP	HIGH POINT	WV	WATER VALVE
PUB	PUBLIC CURB AND GUTTER	PED	PEDESTRIAN
C&G	CURB AND GUTTER		
CMD	CHEROKEE METRO DISTRICT		

LEGEND

SAWCUT LINE	---
SITE BOUNDARY	---
ADJACENT PROPERTY	---
EXIST STORM SEWER LINE	---
EX. UNDERGROUND ELECTRIC LINE	---
EX. SANITARY SEWER LINE	SS
EX. WATER LINE	WL
EX. GAS MAIN	G
EX. FENCE	X
EASEMENT	---
PROP C&G	---
EX. STORM MH	(S)
EX. SANITARY MANHOLE	(SS)
EX. WATER VALVE	(V)
NEW ASPHALT - MATCH EXISTING	---

Scale in Feet
1" = 20'



CLEARWAY FILING NO. 2, LOT 5

STREET IMPROVEMENT PLAN

PROJECT NO. 44-042A DATE: 06-02-2022

DESIGNED BY: DLM CLP
DRAWN BY: CLP
CHECKED BY: DLM

212 N. WABATCH AVE., STE 305
COLORADO SPRINGS, CO 80903
PHONE: 719.555.5465

CIVIL CONSULTANTS, INC.

VIRGIL A. SANCHEZ, COLORADO, P.E. NO. 37160

FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.

NO. DATE: BY: DESCRIPTION: APPROV. BY: DATE:

THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

CAUTION

ABBREVIATION LEGEND

CL	CENTERLINE INTERSECTION	LT	LEFT
FL-FL	FLOWLINE INTERSECTION	RT	RIGHT
BT	BEGIN TRANSITION	FL	FLOWLINE
ET	END TRANSITION	TBC	TOP BACK OF CURB
PC	POINT OF CURVE	XPAN	CROSSSPAN
PCC	POINT OF COMPOUND CURVE	STD	STANDARD
PCR	POINT OF CURB RETURN	SHT	SHEET
PRC	POINT OF REVERSE CURVE	P&P	PLAN AND PROFILE
PT	POINT OF TANGENT	C&G	CURB AND GUTTER
EL	ELEVATION	W	WEST
CDS	CUL-DE-SAC	E	EAST
KN	KNUCKLE	ROW	RIGHT OF WAY
LP	LOW POINT	EOP	EDGE OF PAVEMENT
N	NORTH	WTR	WATER
S	SOUTH	SAN	SANITARY SEWER
HP	HIGH POINT	PVT	PRIVATE
PUB	PUBLIC	WV	WATER VALVE
C&G	CURB AND GUTTER	PED	PEDESTRIAN
CMD	CHEROKEE METRO DISTRICT		

LEGEND

SITE BOUNDARY	---
ADJACENT PROPERTY	---
EX. FENCE	-X-
EASEMENT	---
PROP C&G	====

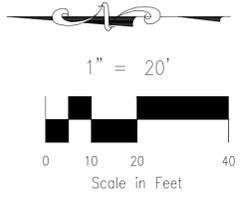
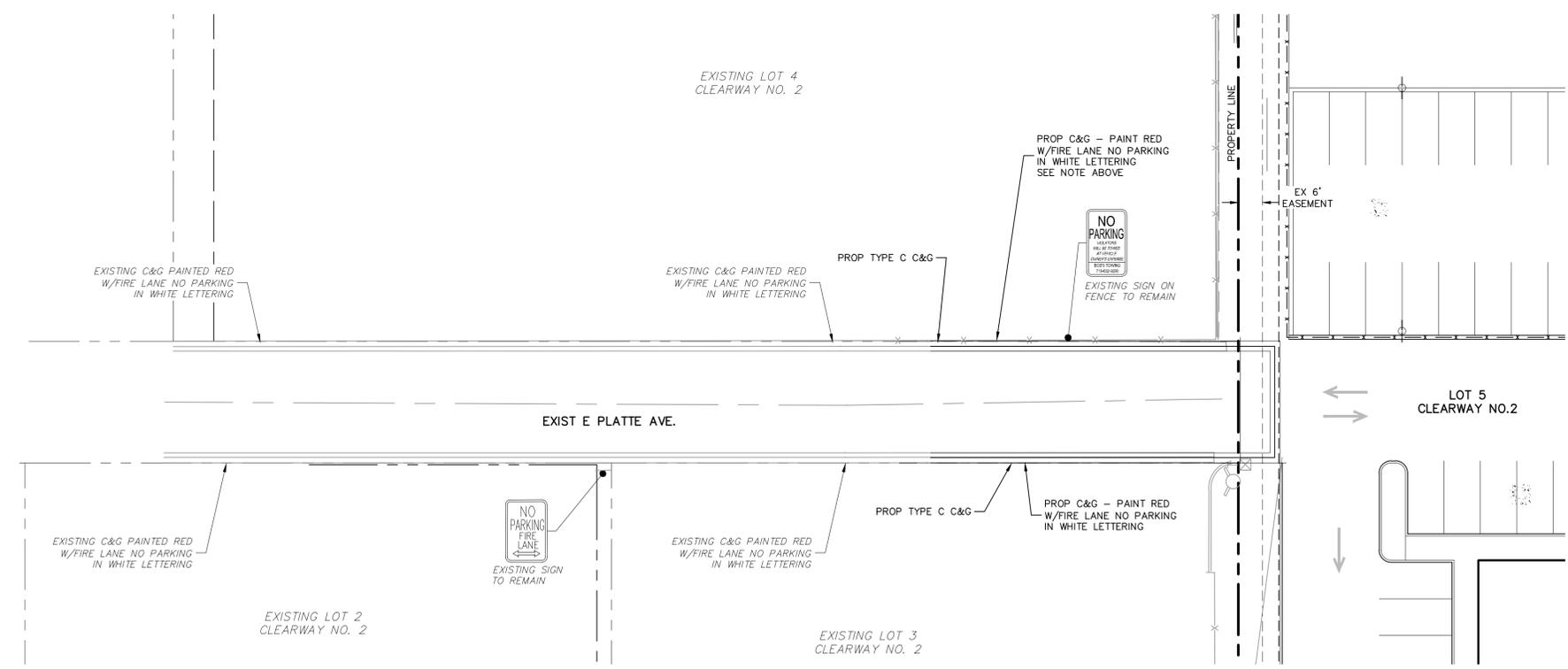
NOTE TO CONTRACTOR:

- ALL SIGNAGE INSTALLATION IS TO BE IN COMPLIANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)

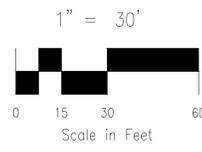
NOTE:

STRIPING ALONG CURB FACE AND TOP OF CURB SHALL BE:

- 6" RED TRAFFIC PAINT STRIPE
- 4" WHITE REFLECTIVE LETTERING/WORDING WITH 3/4" STROKE STATING NO PARKING FIRE LANE
- LETTERING/WORDING SPACED EVERY 25'



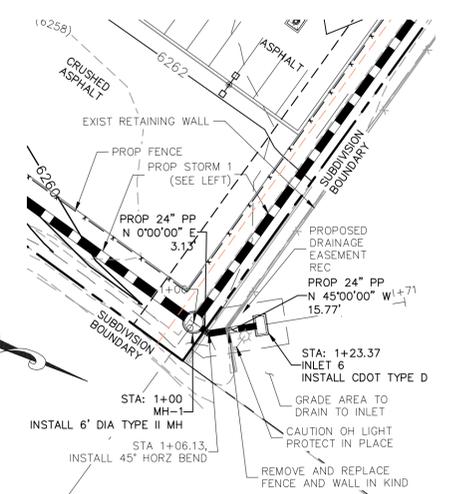
CLEARWAY FILING NO. 2, LOT 5		DATE: 06-02-2022
STRIPING AND SIGNAGE PLAN		SCALE: HORIZONTAL: 1" = 20' VERTICAL: 1" = 2'
PROJECT NO. 44-042A	DESIGNED BY: DLM	DRAWN BY: CLP
	CHECKED BY: DLM	SHEET 5 OF 15
212 N. WASHATCH AVE., STE 305 COLORADO SPRINGS, CO 80903 PHONE: 719.555.5865		
CIVIL CONSULTANTS, INC.		
FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.		
VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160	APPR'D. BY:	DATE:
BY: DESCRIPTION:		
THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.		
CAUTION		



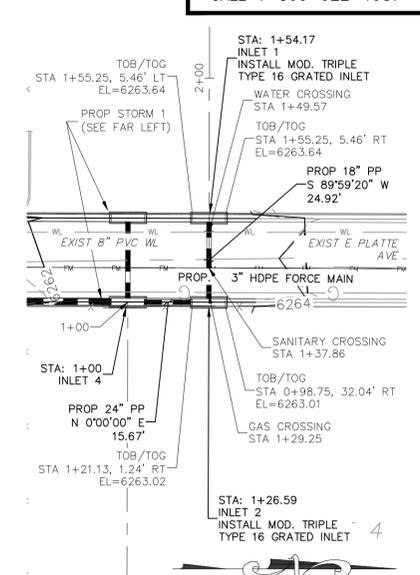
ABBREVIATION LEGEND

- C&G CURB AND GUTTER
- CL CENTERLINE
- CONST CONSTRUCTION
- EL ELEVATION
- EX EXISTING
- LT LEFT
- N NORTH
- NTS NOT TO SCALE
- PUB PUBLIC
- PVT PRIVATE
- PROP PROPOSED
- RT RIGHT
- S SOUTH
- SAN SANITARY SEWER
- SLV SLEEVE
- SRV SERVICE
- STA STATION
- STM STORM SEWER
- W WEST
- WTR WATER

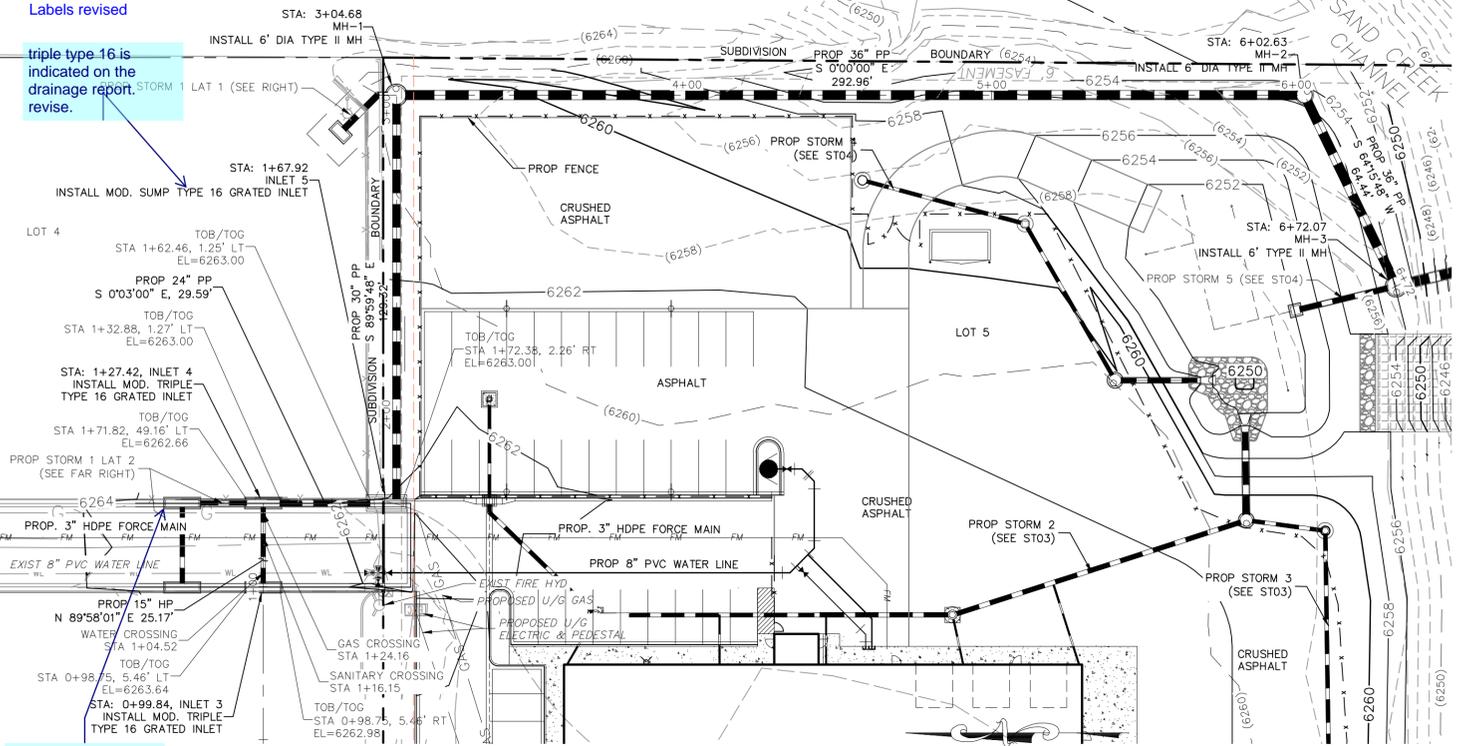
NOTE:
 ALL STORM SEWER CONSTRUCTED WITH THESE PLANS SHALL BE CONSIDERED PRIVATE.
 GAS LINE NOT LOCATED, LOCATION TO BE DETERMINED BY CONTRACTOR



STORM 1 LAT 1 STA 1+00.00 TO STA 1+23.37



STORM 1 LAT 2 STA 1+00.00 TO STA 1+54.01



STORM 1 STA 1+00.00 TO STA 6+72.07

Labels revised
 triple type 16 is indicated on the drainage report revise.

identify who will maintain the proposed inlets and storm sewers in the common easement

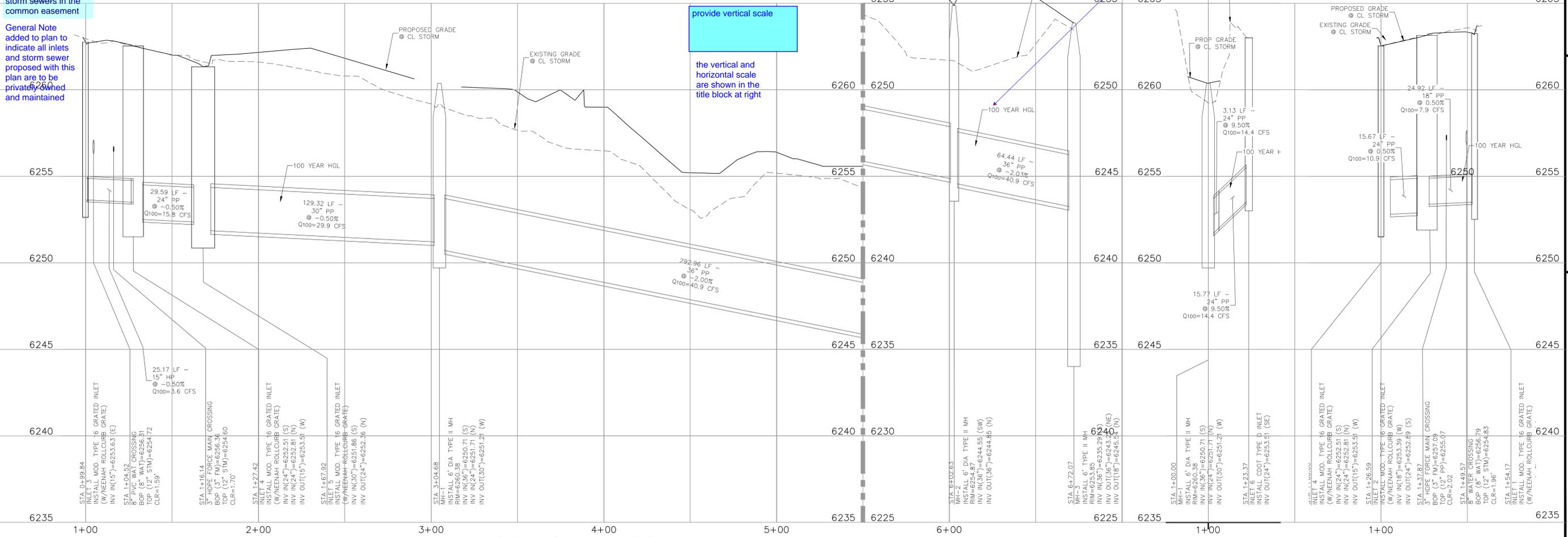
General Note added to plan to indicate all inlets and storm sewer proposed with this plan are to be privately owned and maintained

provide vertical scale

the vertical and horizontal scale are shown in the title block at right

HGL lines added to plans

Show HGL lines on the profiles. Typical at all storm profiles.



STORM 2 STA 1+00.00 TO STA 6+72.07

STORM 1 LAT 1 STA 1+00.00 TO STA 1+23.37

STORM 1 LAT 2 STA 1+00.00 TO STA 1+54.01

CLEARWAY FILING NO. 2, LOT 5

STORM SEWER PLAN AND PROFILE

PROJECT NO. 44-042 DATE: 05-20-2022

SCALE: HORIZONTAL: 1"=30' VERTICAL: 1"=3'

DESIGNED BY: TAU DRAWN BY: TAU CHECKED BY: DLM

210 N. WAHATCH AVE. STE 305
 COLORADO SPRINGS CO 80903
 PHONE 719.955.5485

ST02
 SHEET 2 OF 8

CIVIL CONSULTANTS, INC.

FOR AND ON BEHALF OF MRS. CIVIL CONSULTANTS, INC.

VIRGIL A. SANCHEZ, COLORADO, P.E. NO. 371160

NO.	DATE	BY	DESCRIPTION	APPROV. BY	DATE

THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARED OF THESE PLANS.

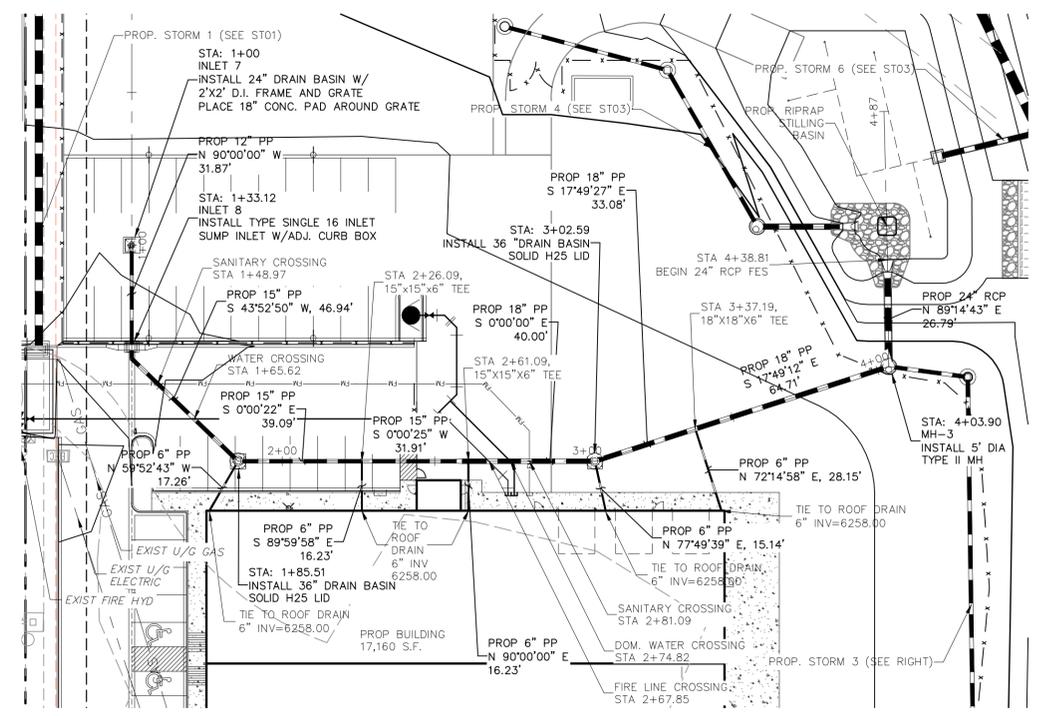
CAUTION



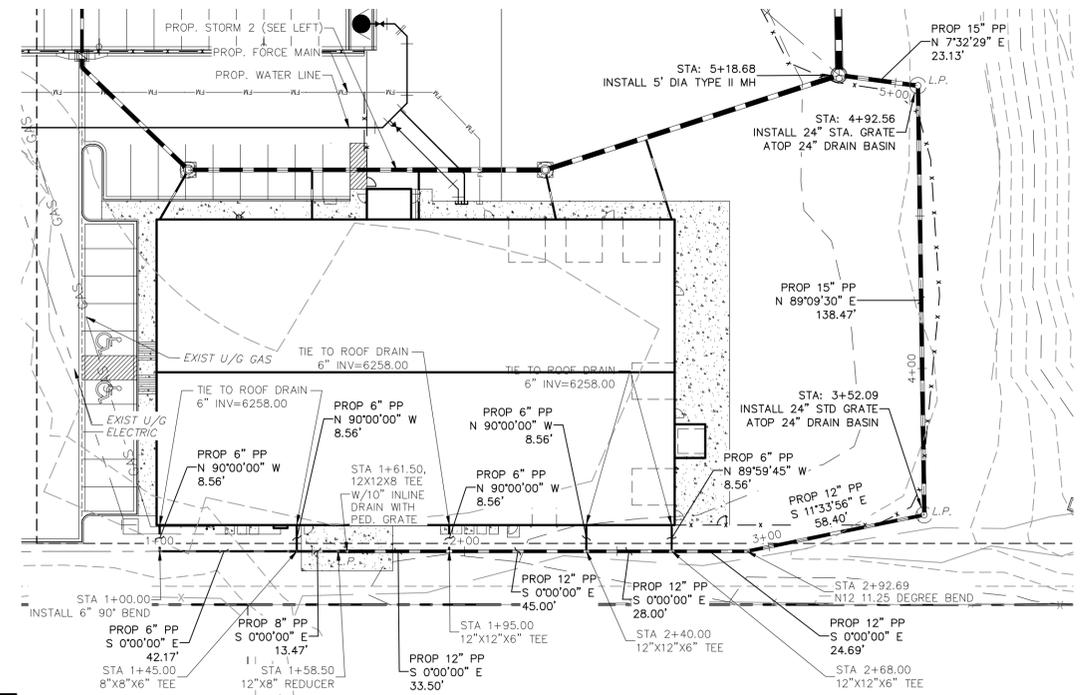
ABBREVIATION LEGEND

C&G	CURB AND GUTTER
CL	CENTERLINE
CONST	CONSTRUCTION
EL	ELEVATION
EX	EXISTING
LT	LEFT
N	NORTH
NTS	NOT TO SCALE
PUB	PUBLIC
PVT	PRIVATE
PROP	PROPOSED
RT	RIGHT
S	SOUTH
SAN	SANITARY SEWER
SLV	SLEEVE
SRV	SERVICE
STA	STATION
STM	STORM SEWER
W	WEST

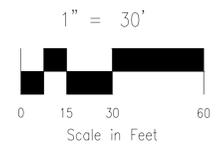
NOTE:
ALL STORM SEWER TO BE PRIVATE.



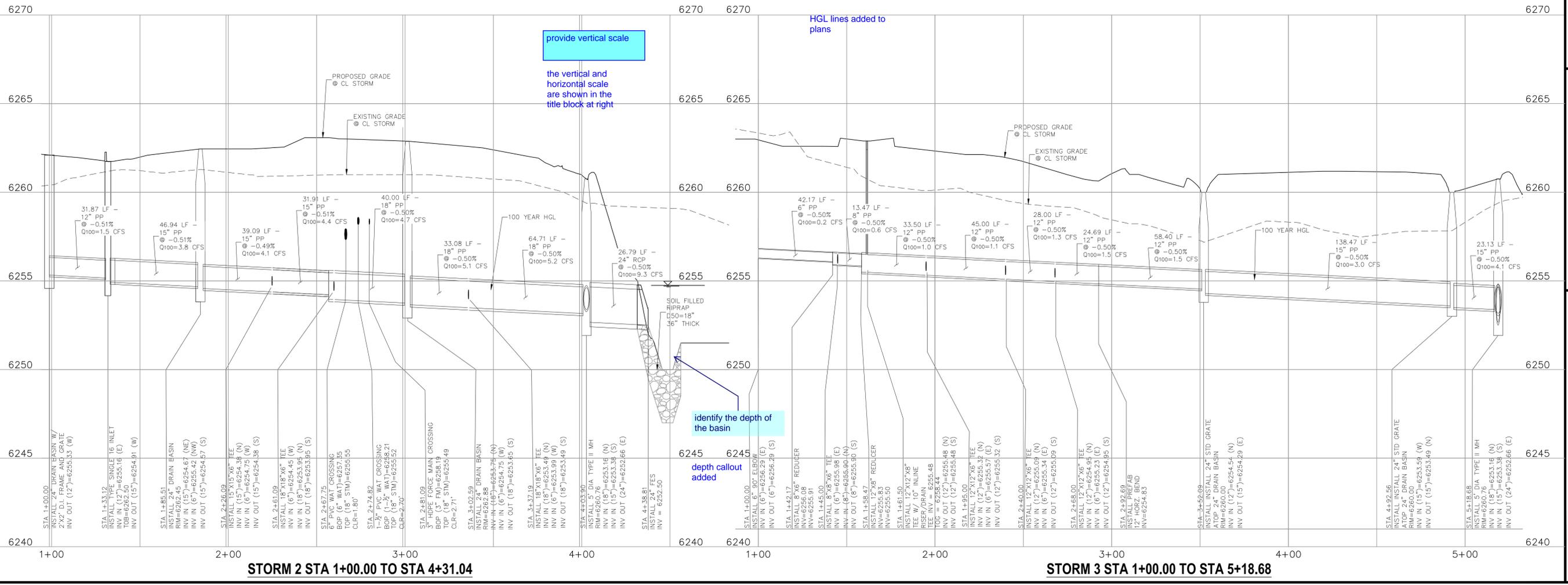
**STORM 2
STA 1+00.00 TO STA 4+38.81**



**STORM 3
STA 1+00.00 TO STA 5+18.68**



Show HGL lines on the profiles.



STORM 2 STA 1+00.00 TO STA 4+31.04

STORM 3 STA 1+00.00 TO STA 5+18.68

provide vertical scale
the vertical and horizontal scale are shown in the title block at right

identify the depth of the basin
depth callout added

CLEARWAY FILING NO. 2, LOT 5

STORM SEWER PLAN AND PROFILE

PROJECT NO. 44-042A DATE: 06-02-2022

DESIGNED BY: DLM SCALE: HORIZONTAL: 1"=30' VERTICAL: 1"=3'

DRAWN BY: CLP SHEET 7 OF 15

CHECKED BY: DLM ST02

210 N. WAHATCH AVE, STE 305
COLORADO SPRINGS CO 80903
PHONE 719.555.5485

CIVIL CONSULTANTS, INC.

FOR AND ON BEHALF OF MRS. CIVIL CONSULTANTS, INC.

VIRGIL A. SANCHEZ, COLORADO, P.E. NO. 371160

REV.	DATE	DESCRIPTION

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CAUTION

FOR LOCATING & MARKING GAS, ELECTRIC, WATER & TELEPHONE LINES
 FOR BURIED UTILITY INFORMATION
 48 HRS BEFORE YOU DIG
 CALL 1-800-922-1987

ABBREVIATION LEGEND

C&G	CURB AND GUTTER
CL	CENTERLINE
CONST	CONSTRUCTION
EL	ELEVATION
EX	EXISTING
LT	LEFT
N	NORTH
NTS	NOT TO SCALE
PUB	PUBLIC
PVT	PRIVATE
PROP	PROPOSED
RT	RIGHT
S	SOUTH
SAN	SANITARY SEWER
SRV	SLEEVE
SRV	SERVICE
STA	STATION
STM	STORM SEWER
W	WEST
WTR	WATER

NOTE:
 ALL STORM SEWER TO BE PRIVATE.

CLEARWAY FILING NO. 2, LOT 5	
STORM SEWER PLAN AND PROFILE	
PROJECT NO. 44-042A	DATE: 06-02-2022
DESIGNED BY: DLM	SCALE: HORIZONTAL: 1"=30'
DRAWN BY: CLP	VERTICAL: 1"=3'
CHECKED BY: DLM	
SHEET 8 OF 15	
ST03	

212 N. WAHATCH AVE, STE 305
 COLORADO SPRINGS, CO 80903
 PHONE: 719.555.5485



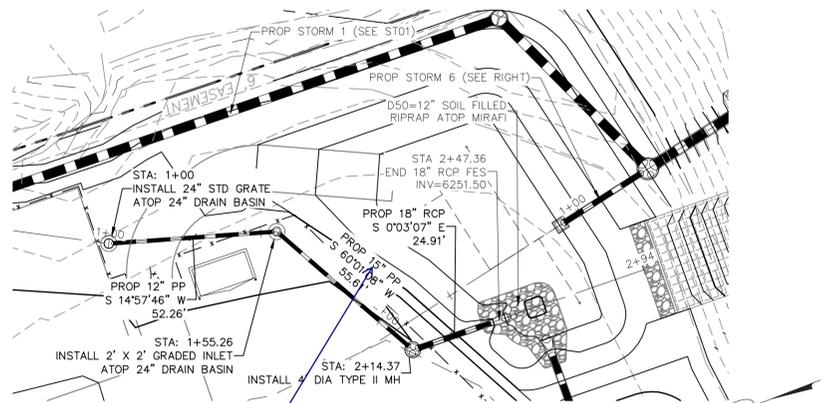
FOR AND ON BEHALF OF
 M&S CIVIL CONSULTANTS, INC.

VIRGIL A. SANCHEZ, COLORADO, P.E. NO. 371160

REVISIONS:	NO.	DATE:	DESCRIPTION:	APPROV'D. BY:	DATE:

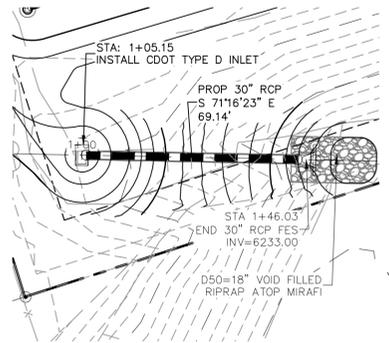
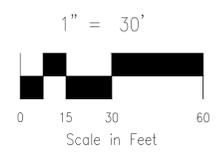
THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARED OF THESE PLANS.

CAUTION



**STORM 4
 STA 1+00.00 TO STA 2+47.36**

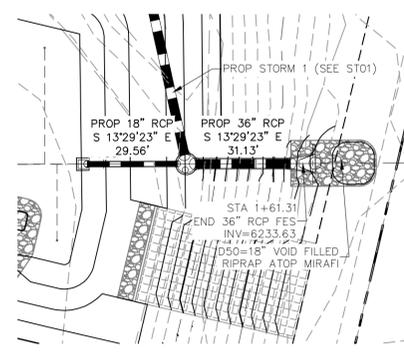
18" identified on the drainage plan. Revise accordingly.
 line sized revised to match drainage report



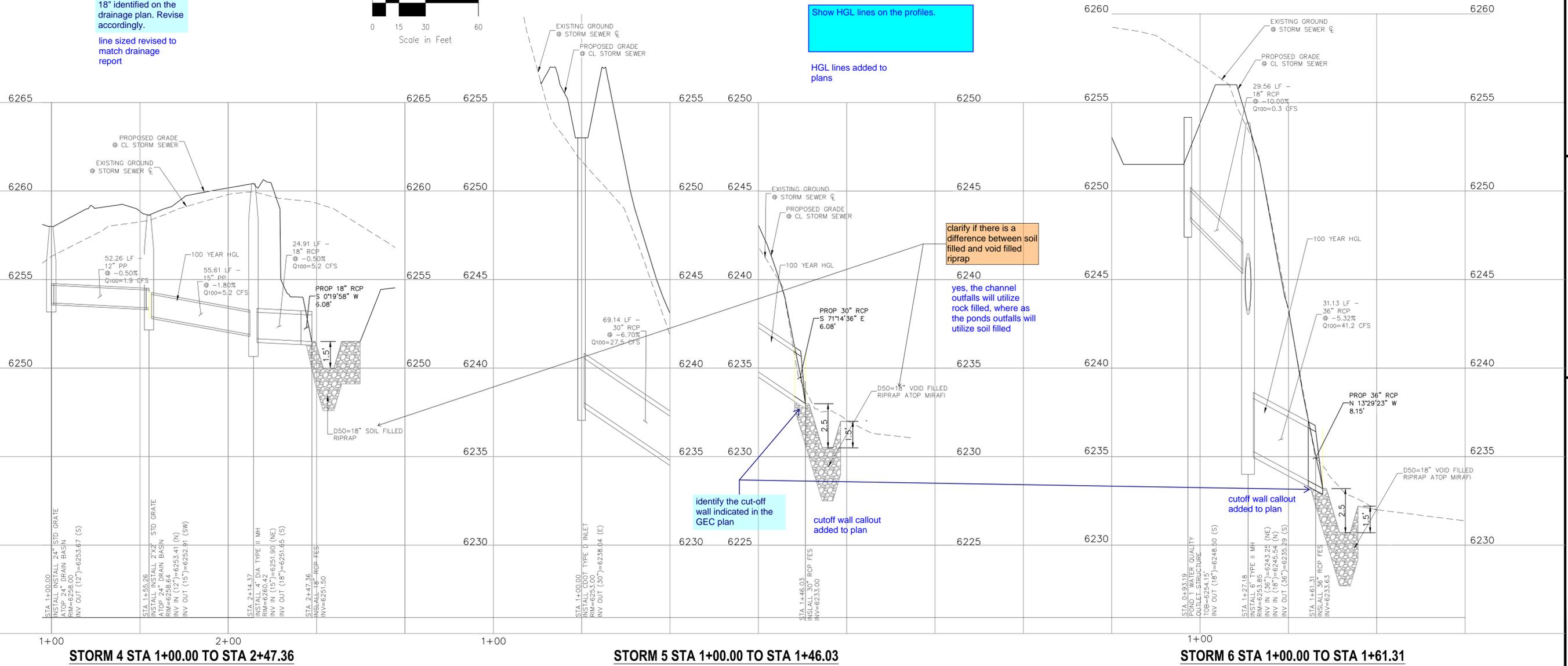
**STORM 5
 STA 1+00.00 TO STA 1+46.03**

Show HGL lines on the profiles.

HGL lines added to plans



**STORM 6
 STA 1+00.00 TO STA 1+61.31**



clarify if there is a difference between soil filled and void filled riprap
 yes, the channel outfalls will utilize rock filled, where as the ponds outfalls will utilize soil filled

identify the cut-off wall indicated in the GEC plan

cutoff wall callout added to plan

cutoff wall callout added to plan

STANDARD CONSTRUCTION NOTES:

- 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.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATION AND FIELD LOCATION 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).
- 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 TIME INCLUDING THE FOLLOWING:
 - EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM)
 - CITY OF COLORADO SPRINGS/EL PASO COUNTY ENGINEERING CRITERIA MANUAL VOLUMES 1 AND 2.
 - COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARDS SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION.
 - CDOT M&S STANDARDS.
- IT IS THE DESIGN ENGINEERS RESPONSIBILITY TO ACCURACY SHOW EXISTING CONDITION BOTH ONSITE AND OFFSITE ON THE CONSTRUCTION PLANS. ANY MODIFICATION NECESSARY DUE TO CONFLICT OMISSIONS OR CHANGED CONDITIONS WILL BE ENTIRELY THE DEVELOPERS RESPONSIBILITY TO RECTIFY.
- IT IS THE CONTRACTORS 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 STORM WATER QUALITY CONTROL PERMIT (ESQCP), REGIONAL BUILDING FLOODPLAIN DEVELOPMENT PERMIT, US ARMY CORPS OF ENGINEER ISSUED 401 AND/OR 404 PERMITS AND COUNTY AND STATE FUGITIVE DUST PERMITS.
- ANY TEMPORARY SIGNAGE AND STRIPING SHALL COMPLY WITH EL PASO COUNTY DOW AND MUTCD CRITERIA.
- CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRED BY EL PASO COUNTY DOT INCLUDING WORK WITHIN THE RIGHT-OF-WAY AND SPECIAL TRANSPORT PERMITS.
- 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 OFFSITE DISTURBANCE GRADING, OR CONSTRUCTION.

STORM SEWER GENERAL NOTES

- ALL STATIONING IS ALONG STORM SEWER CENTERLINE UNLESS OTHERWISE INDICATED. ALL ELEVATIONS ARE INVERT UNLESS OTHERWISE INDICATED.
- ALL STORM SEWER BENDS AND WYES SHOWN ON THE PLAN SHALL BE PREFABRICATED.
- HORIZONTAL AND VERTICAL BENDS ARE INDICATED ON THE PLANS.
- JOINTS SHALL BE IN ACCORDANCE WITH ASTM C443 "STANDARD SPECIFICATIONS FOR JOINTS FOR CIRCULAR CONCRETE SEWER AND CULVERT PIPE USING RUBBER GASKET." IN NO CASE SHALL THE MAXIMUM JOINT OPENING FOR STRAIGHT ALIGNMENT EXCEED 1 INCH OR ONE AND ONE-HALF INCH ON CURVED ALIGNMENT.
- INLET DIMENSIONS SHOWN ON PLANS REFER TO DISTANCES FROM INSIDE FACES OF BOX BETWEEN THE WIDTHS AND LENGTHS.
- MANHOLE WIDTHS AND LENGTHS SHOWN ON PLAN REFER TO THE EXTERIOR WALL DIMENSIONS.
- ALL STORM SEWER SHALL BE A MINIMUM OF CLASS III REINFORCED CONCRETE PIPE. SPECIFIC SEGMENTS OF STORM SEWER SHALL BE REQUIRED TO BE CONSTRUCTED OF A MINIMUM OF 5000 PSI CONCRETE DUE TO EXCESSIVE VELOCITIES. REFER TO ADDITIONAL NOTES WITHIN CONSTRUCTION PLANS.
- SINCE ALL PIPE ENTRIES INTO THE BASE ARE VARIABLE, THE DIMENSIONS SHOWN ARE TYPICAL. ACTUAL DIMENSIONS AND QUANTITIES FOR CONCRETE AND REINFORCEMENT SHALL BE AS REQUIRED IN THE WORK.
- THE MH RING (FRAME) SHALL BE SET IN A BED OF GROUT. THE FRAME SHALL BE SURROUNDED WITH A GROUT IN UNPAVED AREA, OR A CONCRETE COLLAR IN PAVED AREA.
- PRECAST MANHOLES AND REINFORCEMENT SHALL CONFORM TO ASTM C 478 (AASHTO M 199).
- CAST IN PLACE MANHOLES SHALL BE CLASS B CONCRETE.
- STEPS SHALL BE REQUIRED WHEN THE MANHOLE DEPTH EXCEEDS 3'-6" AND SHALL BE IN ACCORDANCE WITH AASHTO M 199.
- ALL REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI. VERTICAL STEEL SHALL BE PLACED AT 1/4 OF WALL. ALL BARS SHALL HAVE A 2" MINIMUM CLEARANCE.
- FLOW CHANNELS AND INVERTS SHALL BE FORMED BY SHAPING WITH CLASS B CONCRETE OR APPROVED GROUT.
- STUB-OUTS SHALL EXTEND 4 FT MINIMUM BEYOND OUTSIDE WALL SURFACE OF MANHOLE AND BE SATISFACTORILY PLUGGED.
- CHECK WITH THE LOCAL GOVERNMENT AUTHORITY FOR ANY ADDITIONAL STORM SEWER SPECIFICATIONS, DETAILS, OR REGULATIONS.
- THE SLOPE OF THE MANHOLE COVER SHALL MATCH THE ROADWAY PROFILE AND CROSS SLOPE.
- THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF ALL PREFABRICATED STRUCTURES TO THE ENGINEER FOR REVIEW PRIOR TO INSTALLATION.

suggest adding U.N.O. as not all pipes indicated are RCP note revised

SOIL RIPRAP NOTES:

- THE SOIL MATERIAL SHALL BE NATIVE OR TOPSOIL AND MIXED WITH SIXTY FIVE PERCENT (65%) RIPRAP AND THIRTY FIVE PERCENT (35%) SOIL BY VOLUME.
- SOIL RIPRAP SHALL CONSIST OF A UNIFORM MIXTURE OF SOIL AND RIPRAP WITHOUT VOIDS.
- CONTRACTOR SHALL COOPERATE WITH ENGINEER IN OBTAINING AND PROVIDED SAMPLES OF ALL SPECIFIED MATERIALS.
- CONTRACTOR SHALL SUBMIT CERTIFIED LABORATORY TEST CERTIFICATES FOR ALL ITEMS REQUIRED FOR SOIL RIPRAP.
- RIPRAP USED SHALL BE THE TYPE DESIGNATED ON THE DRAWINGS AND SHALL CONFORM TO TABLE SHOWN TO THE RIGHT.
- THE RIPRAP DESIGNATION AND TOTAL THICKNESS OF RIPRAP SHALL BE AS SHOWN ON THE DRAWINGS. THE MAXIMUM STONE SIZE SHALL NOT LARGER THAN THE THICKNESS OF THE RIPRAP.
- NEITHER WIDTH NOR THICKNESS OF A SINGLE STONE OF RIPRAP SHALL BE LESS THAN ONE-THIRD (1/3) OF ITS LENGTH.
- THE SPECIFIC GRAVITY OF THE RIPRAP SHALL BE TWO AND ONE-HALF (2.5) OR GREATER.
- MINIMUM DENSITY FOR ACCEPTABLE RIPRAP SHALL BE ONE HUNDRED AND SIXTY FIVE (165) POUNDS PER CUBIC FOOT.
- RIPRAP SPECIFIC GRAVITY SHALL BE ACCORDING TO THE BULK-SATURATED, SURFACE-DRY BASIS, IN ACCORDANCE WITH AASHTO T85.
- BROKEN CONCRETE OR ASPHALT PAVEMENT SHALL NOT BE ACCEPTABLE FOR USE IN THE WORK.
- ROUNDED RIPRAP (RIVER ROCK) IS NOT ACCEPTABLE, UNLESS SPECIFICALLY DESIGNATED ON THE DRAWINGS.

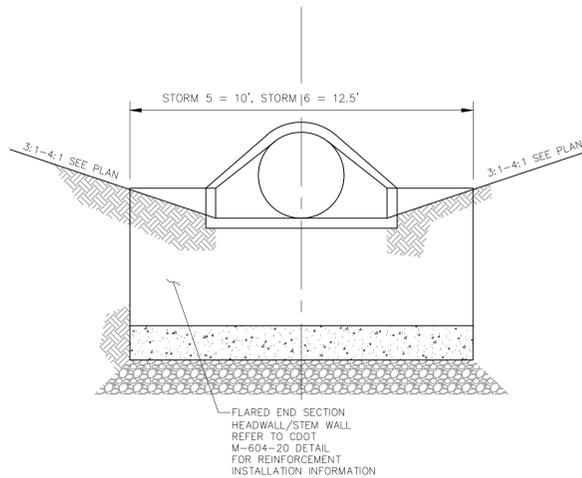
STRUCTURAL CONCRETE NOTES:

- ALL CONSTRUCTION INVOLVING THE PLACEMENT OF STRUCTURAL CONCRETE SHALL BE COMPLETED IN ACCORDANCE WITH STANDARD SPECIFICATIONS, AND AS SUPPLEMENTED BY THE COLORADO DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADWAY AND BRIDGE CONSTRUCTION.
- STEEL REINFORCING SHALL BE GRADE 60 FOR ALL REINFORCING STEEL GREATER THAN #4. SPlicing, LAP SPlicing SHALL BE MINIMUM IN THE FOLLOWING TABLE UNLESS OTHERWISE SPECIFIED:

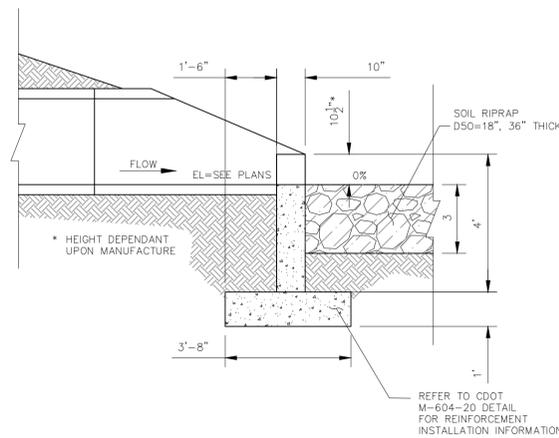
BAR SIZE	#4	#5	#6	#7	#8
SPLICE LENGTH	1'-9"	2'-2"	2'-7"	3'-4"	4'-3"

 ALL REINFORCING SHALL HAVE A 2-INCH MINIMUM COVER UNLESS OTHERWISE SPECIFIED. ALL REINFORCED STEEL TO BE EPOXY COATED.
- CAST-IN-PLACE CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (fc) OF 4,000 PSI AT 28 DAYS. ALL CONCRETE PLACED AGAINST SOIL SHALL BE TYPE II PORTLAND CEMENT. ALL EXPOSED CORNERS SHALL BE FORMED WITH A 3/4" CHAMFER UNLESS OTHERWISE SPECIFIED.
- EXPANSION JOINT MATERIAL SHALL MEET AASHTO SPECIFICATION M-213.
- BACKFILL AGAINST STRUCTURES SHALL NOT COMMENCE UNTIL ALL SUPPORTING DIAPHRAGMS ARE IN PLACE AND CONCRETE HAS OBTAINED ITS FULL SEVEN DAY STRENGTH. BACKFILL SHALL BE PLACED EQUALLY ON EACH SIDE OF RETAINING WALL STRUCTURES AND CUTOFF WALLS UNTIL THE FINAL GRADE IS REACHED.
- FOOTING EXCAVATIONS SHALL BE EXAMINED BY THE GEOTECHNICAL ENGINEER WITH A 24-HOUR MINIMUM NOTIFICATION FOR SOIL AND/OR CONCRETE TESTING. PLACEMENT OF CONCRETE IN THE ABSENCE OF TESTING SHALL BE COMPLETED AT THE SOLE RISK OF THE CONTRACTOR.
- PRIOR TO THE PLACEMENT OF CONCRETE IN AREAS WHERE SOIL IS PRESENT, THE SOIL SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 6-INCHES. THE MOISTURE CONTENT SHALL BE ADJUSTED TO WITHIN PLUS OR MINUS 2 PERCENT OF THE OPTIMUM MOISTURE CONTENT AND RECOMPACTED TO AT LEAST 95 PERCENT RELATIVE COMPACTION (AASHTO-T-180).

ABBREVIATIONS
 EC --- EPOXY COATED O.F. --- OUTSIDE FACE E.F. --- EACH FACE E.W. --- EACH WAY I.F. --- INSIDE FACE N.F. --- NEAR FACE
 T.O.C. --- TOP OF CONCRETE B.O.C. --- BOTTOM OF CONCRETE CONT. --- CONTINUOUS



STORM 5, 6 - OUTFALLS RIPRAP APRON W/HEADWALL ELEVATION (TYP.)
NOT TO SCALE



STORM 5,6 - OUTFALL RIPRAP APRON W/HEADWALL SECTION (TYP.)
NOT TO SCALE

FOR LOCATING & MARKING GAS, ELECTRIC, WATER & TELEPHONE LINES

FOR BURIED UTILITY INFORMATION CALL 1-800-922-1987

CLEARWAY FILING NO. 2, LOT 5		DATE: 06-02-2022	
STORM SEWER NOTES AND DETAILS		HORIZONTAL: N/A	VERTICAL: N/A
PROJECT NO. 44-042A	DESIGNED BY: DLM	CHECKED BY: DLM	SHEET 9 OF 15
	DRAWN BY: CLP		ST04

217 N. WAHATCH AVE., STE 305
 COLORADO SPRINGS, CO 80903
 PHONE 719.955.5485

M&S CIVIL CONSULTANTS, INC.

FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.

VIRGIL A. SANCHEZ, COLORADO, P.E. NO. 37160

NO.	DATE	DESCRIPTION	APPROV'D. BY:	DATE:

THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

CAUTION

STEEL GRATE QUANTITIES

NO. PIECES	DESCRIPTION	LENGTH PER FT.	WEIGHT (LBS.)
4	54 x 7.7 BEAM	40"	7.70
2	3 1/2" x 1/2" FLAT	26 5/8"	2.86
2	3" x 1/2" FLAT	25 1/2"	2.55
TOTAL LBS. = 128			

QUANTITIES FOR ONE INLET

H	CONCRETE (CU. YDS.)	STEEL (LBS.)	STEPS (NO.)
2'-0"	0.3	75	0
3'-0"	1.0	80	0
3'-6"	1.2	96	0
4'-0"	1.3	103	1
4'-6"	1.4	116	2
5'-0"	1.5	122	2
5'-6"	1.7	137	2
6'-0"	1.8	142	3
6'-6"	1.9	158	3
7'-0"	2.0	163	3
7'-6"	2.2	179	4
8'-0"	2.3	184	4
8'-6"	2.4	199	4
9'-0"	2.5	205	5
9'-6"	2.7	220	5
10'-0"	3.0	235	6
10'-6"	3.4	251	6

GENERAL NOTES

- INLET TYPE C IS NOT HS-20 RATED AND SHALL NOT BE PLACED IN PAVED ROADWAYS. THIS INLET SHALL BE USED ONLY OUTSIDE PAVED ROADWAYS.
- CONCRETE SHALL BE CLASS B. INLET MAY BE CAST-IN-PLACE OR PRECAST.
- REINFORCING BARS SHALL BE EPOXY COATED AND REFORMED #4 AND SHALL HAVE A MINIMUM 2 IN. CLEARANCE OUT OR BEND AROUND PIPES AS REQUIRED.
- CONCRETE SLOPE AND DITCH PAVING SHALL BE IN ACCORDANCE WITH SECTION 507. REINFORCEMENT FOR CONCRETE SLOPE PAVING SHALL BE 6 X 6 - W4.4 X W4.4 OR 6 X 6 - W2.1 X W2.1.
- STRUCTURAL STEEL FOR GRATES AND GRATE INSTALLATION HARDWARE SHALL BE GALVANIZED, AND SHALL BE IN ACCORDANCE WITH SUBSECTION 712.06.
- THE STANDARD INLET GRATES SHALL BE USED ON ALL TYPE C INLETS UNLESS CLOSE MESH GRATES ARE SPECIFIED ON THE PLANS.
- CLOSE MESH GRATES ARE RECOMMENDED WHERE FOOT TRAFFIC OR BICYCLE ROUTES ARE IN CLOSE PROXIMITY TO GRATE. THIS GRATE IS NOT ADA COMPLIANT OR BICYCLE FRIENDLY AND SHALL NOT BE PLACED DIRECTLY IN SIDEWALKS, CROSSWALKS OR BIKE PATHS.
- STEPS SHALL BE PROVIDED WHEN INLET DIMENSION "H" IS EQUAL TO OR GREATER THAN 3 FT. - 6 IN. AND SHALL CONFORM TO ASHTO M 199.
- SEE STANDARD PLAN M-604-11 FOR REINFORCEMENT AROUND THE PIPE OPENING.
- ALL INLETS SHALL HAVE A 4 IN. DIA. METAL MEDALLION WITH A 1/2" DIMENSION TO STREAM MESSAGE ON IT. THE MEDALLION SHALL HAVE A FINISH SYMBOL WITH A BLUE BACKGROUND. IT SHALL BE FIRMLY ATTACHED TO THE TOP OF THE INLET WITH A PERMANENT FASTENER.

BAR LIST FOR H = 2 FT. - 6 IN. AND BENDING DIAGRAM

MARK	NO.	DESCRIPTION	LENGTH	WEIGHT
401	2	2" x 3" FLAT	7'-10"	10.0
402	6	2" x 3" FLAT	8'-2"	10.8
403	3	1/4" x 1/4" FLAT	15'-0"	15.0

STANDARD INLET GRATE

NO. 401: 2" x 3" FLAT, 7'-10" LONG
 NO. 402: 2" x 3" FLAT, 8'-2" LONG
 NO. 403: 1/4" x 1/4" FLAT, 15'-0" LONG

GENERAL NOTES

- CONCRETE SHALL BE CLASS B. INLET MAY BE CAST-IN-PLACE OR PRECAST.
- SEE PLANS FOR SIZE AND LOCATION OF PIPE.
- STRUCTURAL STEEL FOR GRATES AND GRATE INSTALLATION HARDWARE SHALL BE GALVANIZED AND SHALL BE IN ACCORDANCE WITH SUBSECTION 712.06.
- STANDARD INLET GRATES SHALL BE USED ON ALL TYPE D INLETS UNLESS CLOSE MESH GRATES ARE SPECIFIED ON THE PLANS.
- STEPS SHALL BE PROVIDED WHEN INLET DIMENSION "H" IS EQUAL TO OR GREATER THAN 3 FT. - 6 IN. AND SHALL CONFORM WITH ASHTO M 199.
- REINFORCING BARS SHALL BE EPOXY COATED AND REFORMED #4 AND SHALL HAVE A 2 IN. MINIMUM CLEARANCE OUT OR BEND AROUND PIPE AS REQUIRED.

QUANTITIES FOR ONE INLET

H	CONCRETE (CU. YDS.)	STEEL (LBS.)	CIRCULAR PIPE RANGE (IN. - FT.)
3.0	1.5	127	18-24
3.5	1.7	149	18-24
4.0	1.9	157	18-30
4.5	2.0	179	18-36
5.0	2.2	187	18-42
5.5	2.4	208	18-42
6.0	2.6	215	18-42
6.5	2.8	236	18-42
7.0	2.9	243	18-42
7.5	3.1	264	18-42
8.0	3.3	271	18-42
8.5	3.5	292	18-42
9.0	3.6	299	18-42
9.5	3.8	320	18-42
10.0	4.0	327	18-42

Computer File Information

Creation Date: 07/04/06 Initials: SRJ
 Last Modification Date: 07/04/06 Initials: LTA
 Full Path: www.dot.state.co.us/DesignSupport/
 Drawing File Name: 604010101.dwg
 CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English

Sheet Revisions

No.	Date	Comments
1		

Colorado Department of Transportation

4201 East Arkansas Avenue
 Denver, Colorado 80222
 Phone: (303) 757-9083
 Fax: (303) 757-9820

Project Development Branch SRJ/LTA
 Issued By: Project Development Branch on July 04, 2006

INLET, TYPE D

STANDARD PLAN NO. M-604-11

Sheet No. 1 of 1

GENERAL NOTES

- CONCRETE SHALL BE CLASS B. INLET MAY BE CAST-IN-PLACE OR PRECAST.
- CONCRETE WALLS SHALL BE FORMED ON BOTH SIDES AND SHALL BE 8 IN. THICK.
- INLET STEPS SHALL BE IN CONFORMANCE WITH ASHTO M 199.
- CURB FACE ASSEMBLY SHALL BE GALVANIZED AFTER WELDING.
- EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED 3/4" IN. CURB AND GUTTER CORNERS SHALL BE FINISHED TO MATCH THE EXISTING CURB AND GUTTER BEHIND THE TRANSITION GUTTER.
- REINFORCING BARS SHALL BE DEFORMED AND SHALL HAVE A 2 IN. MINIMUM CLEARANCE. ALL REINFORCING BARS SHALL BE EPOXY COATED.
- DIMENSIONS AND WEIGHTS OF TYPICAL MANHOLE RING AND COVER ARE NOMINAL.
- MATERIAL FOR MANHOLE RINGS AND COVERS SHALL BE GRAY OR DUCTILE CAST IRON IN ACCORDANCE WITH SUBSECTION 712.02.
- SINCE PIPE ENTRIES INTO THE INLET ARE VARIABLE, THE DIMENSIONS SHOWN ARE TYPICAL. ACTUAL DIMENSIONS AND QUANTITIES FOR CONCRETE AND REINFORCEMENT SHALL BE AS REQUIRED IN THE WORK. QUANTITIES INCLUDE VOLUMES OCCUPIED BY PIPES.
- STRUCTURAL STEEL SHALL BE GALVANIZED AND SHALL BE IN ACCORDANCE WITH SUBSECTION 712.06.

TABLE ONE ~ BAR LIST FOR CURB INLETS, TYPE "R"

H	LENGTH	REGULAR		DROP BOX		L = 5 FT.		L = 10 FT.		L = 15 FT.	
		NO. REQ'D.	NO. REQ'D.	NO. REQ'D.	NO. REQ'D.	CONC.	STEEL	CONC.	STEEL	CONC.	STEEL
3'-0"	2'-8"	10	7	3.2	285	5.3	497	7.4	706		
3'-6"	3'-2"	10	7	3.4	305	5.7	528	7.9	747		
4'-0"	3'-6"	12	9	3.7	326	6.0	559	8.4	786		
4'-6"	4'-0"	12	9	3.9	344	6.4	591	8.8	833		
5'-0"	4'-8"	14	11	4.1	354	6.7	602	9.3	844		
5'-6"	5'-2"	16	13	4.4	375	6.0	607	7.4	850		
6'-0"	5'-6"	16	13	4.6	382	6.2	616	7.6	860		
6'-6"	6'-0"	18	15	4.8	402	6.4	637	7.8	880		
7'-0"	6'-6"	20	17	5.0	423	6.6	654	8.0	897		
7'-6"	7'-0"	20	17	5.3	430	6.9	664	8.3	907		
8'-0"	7'-6"	22	19	5.5	451	7.1	684	8.5	927		
8'-6"	8'-0"	24	21	5.7	471	7.3	702	8.7	944		
9'-0"	8'-6"	24	21	6.0	479	7.6	711	9.0	954		
9'-6"	9'-0"	26	23	6.2	499	7.8	732	9.2	974		
10'-0"	9'-6"	28	25	6.4	520	8.0	749	9.4	992		
10'-6"	10'-0"	28	25	6.7	527	8.3	759	9.7	1001		
11'-0"	10'-6"	30	27	6.9	547	8.5	779	9.9	1022		

TABLE TWO ~ BARS AND QUANTITIES VARIABLE WITH "H"

REGULAR INLETS: TOTAL QUANTITIES NEEDED ARE OUTSIDE THE HEAVY BLACK LINE.
 DROP BOX INLETS: TOTAL QUANTITIES NEEDED ARE INSIDE THE HEAVY BLACK LINE.
 STEEL WEIGHTS DO NOT INCLUDE STRUCTURAL STEEL CHANNEL.

Computer File Information

Creation Date: 07/04/06 Initials: SRJ
 Last Modification Date: 07/04/06 Initials: LTA
 Full Path: www.dot.state.co.us/DesignSupport/
 Drawing File Name: 6040120202.dwg
 CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English

Sheet Revisions

No.	Date	Comments
1		

Colorado Department of Transportation

4201 East Arkansas Avenue
 Denver, Colorado 80222
 Phone: (303) 757-9083
 Fax: (303) 757-9820

Project Development Branch SRJ/LTA
 Issued By: Project Development Branch on July 04, 2006

CURB INLET TYPE R

STANDARD PLAN NO. M-604-12

Sheet No. 2 of 2

File: C:\44042A-Wre Nut\Hammers\Draw\Storm\44042A-ST06.dwg Plotstamp: 6/3/2022 9:00 PM

CLEARWAY FILING NO. 2, LOT 5
 STORM SEWER DETAILS

PROJECT NO. 44-042A
 SCALE: HORIZONTAL: N/A
 DATE: 06-02-2022
 DESIGNED BY: DLM
 DRAWN BY: CLP
 CHECKED BY: DLM

212 N. WAHSAH AVE., STE. 305
 COLORADO SPRINGS, CO 80903
 PHONE 719.555.5485

CIVIL CONSULTANTS, INC.

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CAUTION

EL PASO COUNTY FILE NO. PCD # SF-20-014

HP STORM TRENCH INSTALLATION DETAIL (ALTERNATE)

TABLE 1. RECOMMENDED MINIMUM TRENCH WIDTHS

PIPE DIAM.	MIN TRENCH WIDTH
12" (300mm)	30" (750mm)
15" (375mm)	34" (860mm)
18" (450mm)	39" (990mm)
24" (600mm)	48" (1200mm)
30" (750mm)	56" (1420mm)
36" (900mm)	64" (1620mm)
42" (1050mm)	72" (1830mm)
48" (1200mm)	80" (2030mm)
60" (1500mm)	96" (2440mm)

NOTES:

- MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
- SOIL CLASSIFICATIONS ARE PER THE LATEST VERSION OF ASTM D2321. CLASS I/II MATERIALS (MH, CH) AS DEFINED IN PREVIOUS VERSIONS OF ASTM D2321 ARE NOT APPROPRIATE BACKFILL MATERIALS.
- FOUNDATION:** WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
- BEDDING:** SUITABLE MATERIAL SHALL BE CLASS I, THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER, UNLESS OTHERWISE NOTED BY THE ENGINEER. MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 4"-24" (100mm-600mm), 5" (125mm) FOR 30"-60" (750mm-1500mm).
- BACKFILL:** FOR PIPES OUTSIDE OF PAVEMENT CLASS I MATERIAL TO BE USED FOR BACKFILL UP TO THE SPRINGLINE OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER, UNLESS OTHERWISE NOTED BY THE ENGINEER. CLASS I MATERIAL MUST BE COMPACTED IN 6" (200mm) LIFTS.
- MINIMUM COVER:** MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" (300mm) FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOTTATION.
- SELECT NATIVE CLEAN BACKFILL:** SHALL BE WELL PLACED, MODERATELY COMPACTED (85% SPD) CLASS IV OR BETTER PER ASTM D2321 WITH NO FOREIGN DEBRIS INCLUDING ROCKS, LARGE CLUMPS ORGANIC MATERIAL, OR FROZEN MATERIAL.
- HP ALTERNATE STORM TRENCH DETAIL:** MUST BE APPROVED BY DESIGN ENGINEER. DETAIL DOES NOT SUPERSEDE ADS STANDARD DETAIL STD-108.

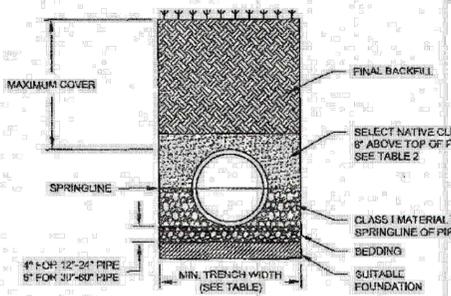


TABLE 2. MAXIMUM COVER FOR ADS HP STORM PIPE, ALTERNATE INSTALLATION, R (h=120)

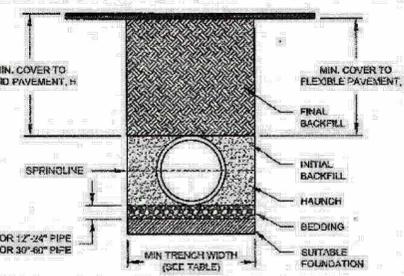
PIPE DIAM.	SELECT NATIVE CLEAN MATERIAL CLASSIFICATION		
	CLASS II	CLASS III	CLASS IV
12" (300mm)	17 (5.2m)	14 (4.3m)	11 (3.4m)
15" (375mm)	17 (5.2m)	14 (4.3m)	10 (3.0m)
18" (450mm)	16 (4.9m)	13 (4.0m)	10 (3.0m)
24" (600mm)	14 (4.3m)	12 (3.7m)	9 (2.7m)
30" (750mm)	13 (4.0m)	12 (3.7m)	8 (2.4m)
36" (900mm)	11 (3.4m)	11 (3.4m)	7 (2.1m)
42" (1050mm)	11 (3.4m)	11 (3.4m)	7 (2.1m)
48" (1200mm)	11 (3.4m)	10 (3.0m)	6 (1.8m)
60" (1500mm)	11 (3.4m)	10 (3.0m)	6 (1.8m)

FILL HEIGHT TABLE GENERATED ASSUMING DRY CONDITIONS, OUTSIDE OF WATER TABLE. FOR INSTALLATION WITHIN THE WATER TABLE, CONTACT APPLICATIONS ENGINEERING.

REV.	CLASS I COMPACTED	CLASS II	CLASS III	CLASS IV	DATE	BY	CHKD
1					02/03/2015	MMDDYY	CHYO

ADVANCED DRAINAGE SYSTEMS, INC. (ADS) HAS PREPARED THIS DETAIL BASED ON INFORMATION PROVIDED TO ADS. THIS DRAWING IS INTENDED TO REPLICATE THE COMPONENTS AS REQUESTED. ADS HAS NOT PERFORMED ANY ENGINEERING OR DESIGN SERVICES FOR THIS PROJECT. NOR HAS ADS INDEPENDENTLY VERIFIED THE INFORMATION SUPPLIED. THE INSTALLATION DETAILS PROVIDED HEREIN ARE GENERAL RECOMMENDATIONS AND ARE NOT SPECIFIC TO THIS PROJECT. THE DESIGN ENGINEER SHALL REVIEW THESE DETAILS PRIOR TO CONSTRUCTION. IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ENSURE THE DETAILS PROVIDED HEREIN MEETS OR EXCEEDS THE APPLICABLE NATIONAL, STATE, OR LOCAL REQUIREMENTS AND TO ENSURE THAT THE DETAILS PROVIDED HEREIN ARE ACCEPTABLE FOR THIS PROJECT.

N-12 HP STORM TRENCH INSTALLATION DETAIL



NOTES:

- ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, 'STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS', LATEST EDITION, WITH THE EXCEPTION THAT THE INITIAL BACKFILL MAY EXTEND TO THE CROWN OF THE PIPE. SOIL CLASSIFICATIONS ARE PER THE LATEST VERSION OF ASTM D2321. CLASS I/II MATERIALS (MH, CH) AS DEFINED IN PREVIOUS VERSIONS OF ASTM D2321 ARE NOT APPROPRIATE BACKFILL MATERIALS.
- MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
- FOUNDATION:** WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
- BEDDING:** SUITABLE MATERIAL SHALL BE CLASS I, II, III, OR IV. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER, COMPACTION SHALL BE SPECIFIED BY THE ENGINEER IN ACCORDANCE WITH TABLE 3 FOR THE APPLICABLE FILL HEIGHTS LISTED. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 12"-24" (300mm-600mm) DIAMETER PIPE, 5" (125mm) FOR 30"-60" (750mm-1500mm) DIAMETER PIPE. THE MIDDLE 12" BENEATH THE PIPE INVERT SHALL BE LOOSELY PLACED. PLEASE NOTE, CLASS IV MATERIAL HAS LIMITED APPLICATION AND CAN BE DIFFICULT TO PLACE AND COMPACT; USE ONLY WITH THE APPROVAL OF A SOIL EXPERT.
- INITIAL BACKFILL:** SUITABLE MATERIAL SHALL BE CLASS I, II, III, OR IV IN THE PIPE ZONE EXTENDING TO THE CROWN OF THE PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER, MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION. COMPACTION SHALL BE SPECIFIED BY THE ENGINEER IN ACCORDANCE WITH TABLES FOR THE APPLICABLE FILL HEIGHTS LISTED. PLEASE NOTE, CLASS IV MATERIAL HAS LIMITED APPLICATION AND CAN BE DIFFICULT TO PLACE AND COMPACT; USE ONLY WITH THE APPROVAL OF A SOIL EXPERT.
- MINIMUM COVER:** MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" (300mm) FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOTTATION. FOR TRAFFIC APPLICATIONS: CLASS I/II MATERIAL COMPACTED TO 90% SPD AND CLASS III COMPACTED TO 95% SPD IS REQUIRED. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" (300mm) UP TO 48" (1200mm) DIAMETER PIPE AND 24" (600mm) OF COVER FOR 60" (1500mm) DIAMETER PIPE. MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT. CLASS IV MATERIALS ARE NOT RECOMMENDED AS BACKFILL. FOR TRAFFIC APPLICATION WITH LESS THAN 12" (300mm) OF COVER MEASURED FROM TOP OF PIPE TO TOP OF SURFACE.

TABLE 1. RECOMMENDED MINIMUM TRENCH WIDTHS

PIPE DIAM.	MIN TRENCH WIDTH
12" (300mm)	30" (750mm)
15" (375mm)	34" (860mm)
18" (450mm)	39" (990mm)
24" (600mm)	48" (1200mm)
30" (750mm)	56" (1420mm)
36" (900mm)	64" (1620mm)
42" (1050mm)	72" (1830mm)
48" (1200mm)	80" (2030mm)
60" (1500mm)	96" (2440mm)

TABLE 2. MINIMUM RECOMMENDED COVER BASED ON VEHICLE LOADING CONDITIONS

PIPE DIAM.	SURFACE LIVE LOADING CONDITION	
	H-20	HEAVY CONSTRUCTION (75T AXLE LOAD)*
12" - 48" (300mm - 1200mm)	12" (300mm)	48" (1200mm)
60" (1500mm)	24" (600mm)	60" (1500mm)

TABLE 3. MAXIMUM COVER FOR ADS N-12 HP PIPE, I

PIPE DIA.	CLASS I COMPACTED	CLASS II							
		65%	90%	95%	95%	90%	85%	85%	
12" (300mm)	39 (11.9m)	27	20	18	21	16	14	15	
15" (375mm)	42 (12.8m)	29	21	16	22	17	15	14	
18" (450mm)	36 (11.0m)	25	18	13	19	14	13	12	
24" (600mm)	31 (8.4m)	22	16	11	16	12	11	10	
30" (750mm)	36 (11.0m)	26	18	13	19	14	13	12	
36" (900mm)	32 (8.9m)	23	16	11	16	12	11	10	
42" (1050mm)	37 (11.3m)	25	18	13	18	13	12	9	
48" (1200mm)	35 (10.7m)	24	17	12	17	13	11	9	
60" (1500mm)	37 (11.3m)	23	17	12	18	13	11	7	

FILL HEIGHT TABLE GENERATED USING AASHTO SECTION 12, LOAD RESISTANCE FACTOR DESIGN (LRFD) PROCEDURE WITH THE FOLLOWING ASSUMPTIONS:

HEIGHT OF WATER (HW) = CROWN + 1'. UNIT WEIGHT OF SOIL (γ) = 120 PCF

RESISTANCE FACTOR (φ) = 0.90

REV.	DESCRIPTION	DATE	BY	CHKD
1	GENERAL UPDATE	04/14/12	MMDDYY	CHYO

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NOT TO SCALE

CLEARWAY FILING NO. 2, LOT 5

STORM SEWER DETAILS

PROJECT NO. 44-042A
SCALE: HORIZONTAL: N/A
VERTICAL: N/A
DATE: 06-02-2022

SHEET 11 OF 15
ST06

212 N. WAHATCHA AVE., STE 305
COLORADO SPRINGS, CO 80903
PHONE 719.555.5485



FOR AND ON BEHALF OF
MKS CIVIL CONSULTANTS, INC.

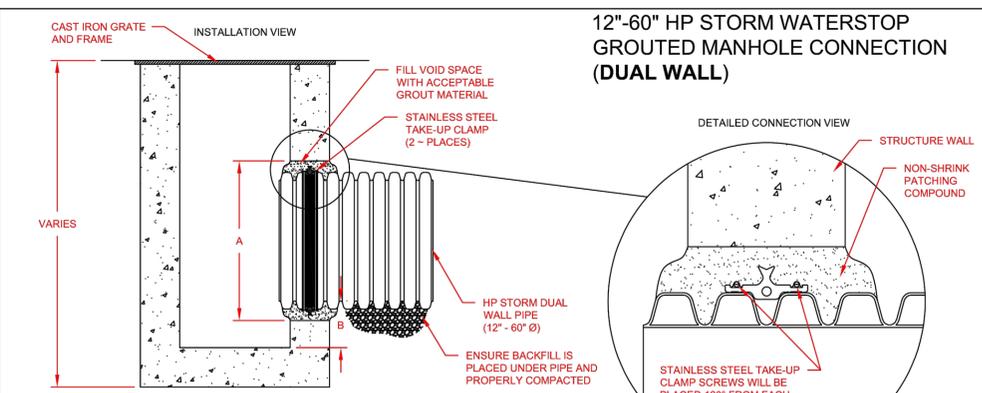
VIRGIL A. SANCHEZ, COLORADO, P.E. NO. 371160

REVISIONS: NO. DATE: BY: DESCRIPTION:

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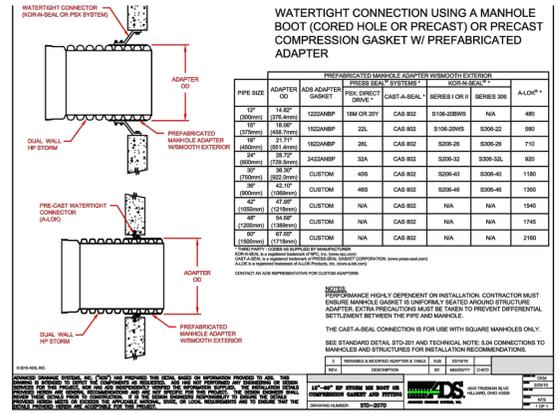
- NOTES:**
- PERFORMANCE HIGHLY DEPENDENT ON INSTALLATION. CONTRACTOR MUST ENSURE MANHOLE GASKET IS UNIFORMLY SEATED AROUND STRUCTURE ADAPTER. EXTRA PRECAUTIONS MUST BE TAKEN TO PREVENT DIFFERENTIAL SETTLEMENT BETWEEN THE PIPE AND MANHOLE.
 - INSTALLATION RECOMMENDATIONS ARE ALSO SPECIFIED IN INSTALLATION GUIDE 1.05: WATERSTOP INSTALLATION

PIPE SIZE	PIPE OD	"A" MIN. HOLE Ø	"B" MIN. DISTANCE FROM PIPE INVERT TO STRUCTURE INVERT	ADS PRODUCT CODE
12"	14.5"	19.50"	3.7"	1202PS
15"	17.6"	23.00"	3.7"	1502PS
18"	21.2"	26.50"	4.2"	1802PS
21"	24.8"	30.25"	4.5"	2102PS
24"	27.8"	33.25"	4.5"	2402PS
30"	35.1"	40.50"	5.2"	3002PS
36"	41.1"	47.00"	5.5"	3602PS
42"	47.7"	53.00"	5.7"	4202PS
48"	53.6"	59.00"	5.7"	4802PS
60"	66.3"	72.00"	6.4"	6002PS

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REV.	DESCRIPTION	DATE	BY	CHKD
3	ADDED METRIC UNITS AND RENAMED	01/30/16	MMDDYY	CHYO

12"-60" HP STORM MB GROUDED WATERSTOP
DRAWING NUMBER: STD-206A
ADS 4640 TRIJUMMAN BLVD HILLIARD, OHIO 43026



PIPE SIZE	ADAPTER OD	ADAPTER GASKET	PRECAST SEAL SYSTEM	NON-SEAL SYSTEM	AUGER
12"	14.5"	19.50"	1222ANBP	1222ANBP	1222ANBP
15"	17.6"	23.00"	1522ANBP	1522ANBP	1522ANBP
18"	21.2"	26.50"	1822ANBP	1822ANBP	1822ANBP
21"	24.8"	30.25"	2122ANBP	2122ANBP	2122ANBP
24"	27.8"	33.25"	2422ANBP	2422ANBP	2422ANBP
30"	35.1"	40.50"	3022ANBP	3022ANBP	3022ANBP
36"	41.1"	47.00"	3622ANBP	3622ANBP	3622ANBP
42"	47.7"	53.00"	4222ANBP	4222ANBP	4222ANBP
48"	53.6"	59.00"	4822ANBP	4822ANBP	4822ANBP
60"	66.3"	72.00"	6022ANBP	6022ANBP	6022ANBP

PERFORMANCE HIGHLY DEPENDENT ON INSTALLATION. CONTRACTOR MUST ENSURE MANHOLE GASKET IS UNIFORMLY SEATED AROUND STRUCTURE ADAPTER. EXTRA PRECAUTIONS MUST BE TAKEN TO PREVENT DIFFERENTIAL SETTLEMENT BETWEEN THE PIPE AND MANHOLE.

SEE STANDARD DETAIL STD-205 AND TECHNICAL NOTE 5.8 FOR CONNECTIONS TO MANHOLE AND STRUCTURE FOR WATERSTOP INSTALLATION RECOMMENDATIONS.

STORM SEWER GENERAL NOTES

- THE CONTRACTOR SHALL COORDINATE WITH THE GEOTECHNICAL ENGINEER AND PIPE MANUFACTURE (ADS) TO DETERMINE ACCEPTABLE MATERIAL(S) FOR BACKFILL AND SHALL PRESENT A COPY OF THE TYPICAL TRENCH SECTION(S) TO EL PASO COUNTY ENGINEERING FOR ACCEPTANCE PRIOR TO CONSTRUCTION.
- COMPACTION AND MATERIAL TESTING SHALL BE IN ACCORDANCE WITH EL PASO COUNTY SPECIFICATIONS.
- THE SPECIFICATION AND GUIDELINES PROVIDED ON THIS PLAN ARE FOR INFORMATION PURPOSES ONLY. IT IS THE CONTRACTOR RESPONSIBILITY TO BE IN COMPLIANCE WITH THE INSTALLATION GUIDELINES PROVIDED BY THE PIPE MANUFACTURE.

ADS HP STORM 12"-60" PIPE SPECIFICATION

Scope
This specification describes 12- through 60-inch (300 to 1500 mm) ADS HP Storm pipe for use in gravity flow storm drainage applications.

Pipe Requirements

- 12- through 30-inch (300 to 750 mm) pipe shall have a smooth interior and annular exterior corrugations and meet or exceed ASTM F2736 and AASHTO M330.
- 36- through 60-inch (900 to 1500 mm) pipe shall have a smooth interior and annular exterior corrugations and meet or exceed ASTM F2736 and AASHTO M330.
- Manning's "n" value for use in design shall be 0.012.

Joint Performance
Pipe shall be joined with a gasketed integral bell & spigot joint meeting the requirements of ASTM F2736 or F2881, for the respective diameters.

12- through 60-inch (300 to 1500 mm) shall be watertight according to the requirements of ASTM D3212. Spigots shall have gaskets meeting the requirements of ASTM F477. Gasket shall be installed by the pipe manufacturer and covered with a removable, protective wrap to ensure the gasket is free from debris. A joint marked available from the manufacturer shall be used on the gasket and bell joint assembly.

12- through 60-inch (300 to 1500 mm) diameters shall have a reinforced bell with a polymer composite band installed by the manufacturer.

Fittings
Fittings shall conform to ASTM F2736, ASTM F2881 and AASHTO M330, for the respective diameters. Bell & spigot connections shall utilize a spigot-on, welded or integral bell and spigot with gaskets meeting ASTM F477. Bell & spigot fittings shall meet the watertight joint performance requirements of ASTM D3212. Coupled couplings shall be split collar, engaging at least 2 full corrugations.

Field Pipe and Joint Performance
To assure watertightness, field performance verification may be accomplished by testing in accordance with ASTM F4171 or ASTM F4847. Appropriate safety precautions must be used when field testing any pipe material. Contact the manufacturer for recommended leakage rates.

Material Properties
Polypropylene compound for pipe and fitting production shall be impact modified copolymer meeting the material requirements of ASTM F2736, Section 4, ASTM F2881, Section 5 and AASHTO M330, Section 6.1, for the respective diameters.

Installation
Installation shall be in accordance with ASTM D2321 and ADS recommended installation guidelines, with the exception that minimum cover in traffic areas for 12- through 48-inch (300 to 1200 mm) diameters shall be one foot, (0.3 m) and for 60-inch (1500 mm) diameters, the minimum cover shall be 2 ft. (0.6 m) in single run applications. Backfill for minimum cover situations shall consist of Class 1, Class 2 (minimum 90% SPD) or Class 3 (minimum 85% material) material. Maximum fill height depends on embankment material and compaction level; please refer to Technical Note 2.04. Contact your local ADS representative or visit our website at www.ads.com for a copy of the latest installation guidelines.

Pipe Dimensions

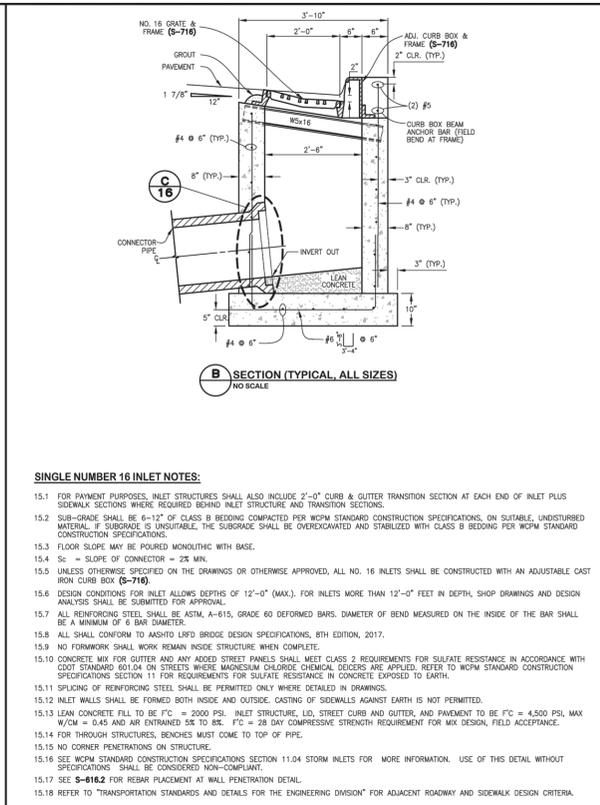
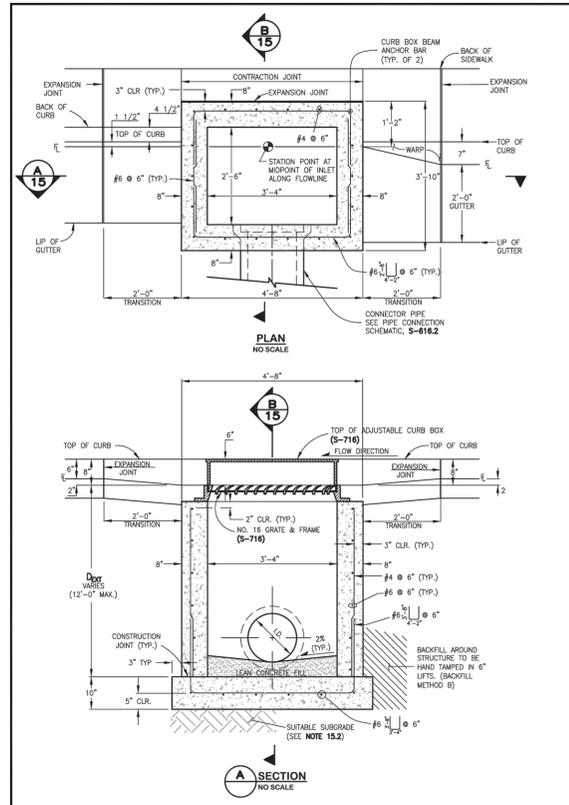
Nominal Pipe ID	12	15	18	24	30	36	42	48	60
Min. Pipe ID	(300)	(375)	(450)	(600)	(750)	(900)	(1050)	(1200)	(1500)
Max. Pipe ID	(300)	(375)	(450)	(600)	(750)	(900)	(1050)	(1200)	(1500)
Average Pipe ID	(300)	(375)	(450)	(600)	(750)	(900)	(1050)	(1200)	(1500)
Min. Pipe Wall	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)
Min. Pipe Thickness	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)
Min. Pipe Weight	(6.0)	(6.0)	(6.0)	(6.0)	(6.0)	(6.0)	(6.0)	(6.0)	(6.0)

* Minimum pipe ID values listed; contact a representative for maximum pipe ID.

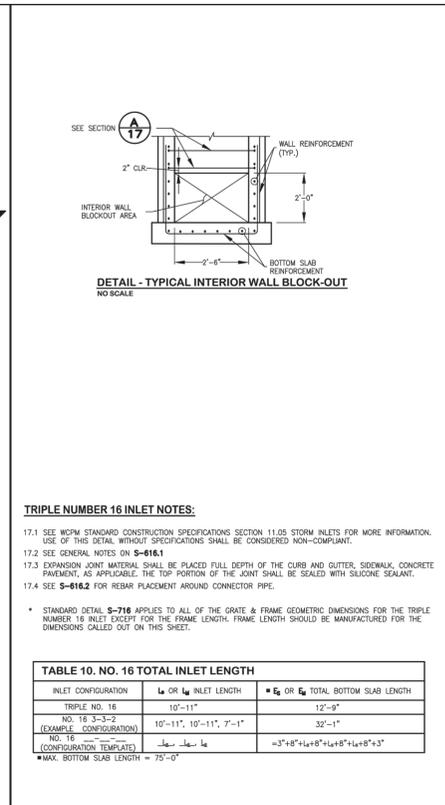
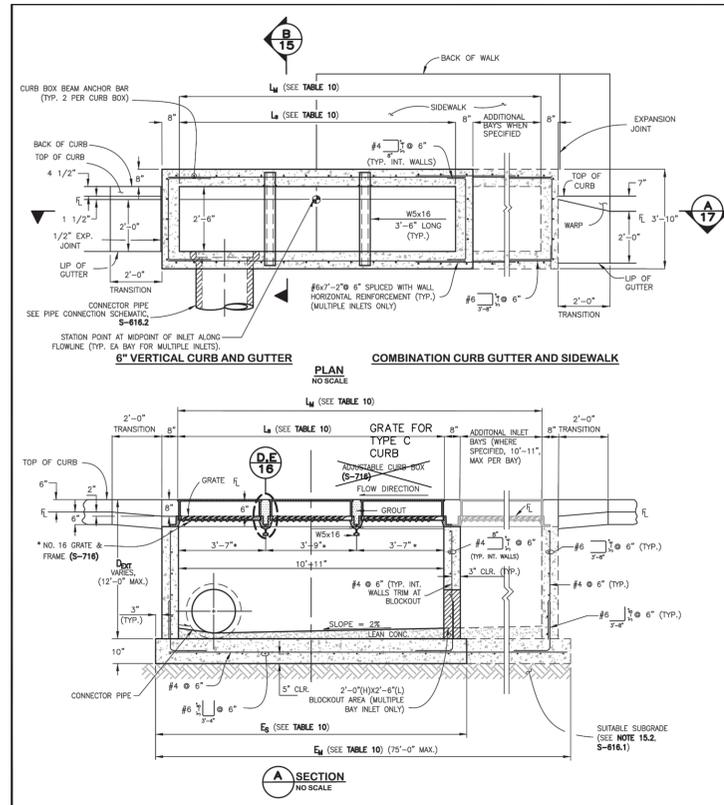
Table S-7 Bend Radii for ADS Thermoplastic Pipe

Pipe Diameter, In (mm)	Joint Type	Maximum Deflection at Joint (deg)	Radius, R (ft), per pipe length		
			18 R (6m)	13 R (4m)	29 R (9m)
4 - 36 (100 - 900)	N-12 (split band or bell-coupling)	3	191 (58)	248 (76)	382 (116)
42 - 60 (1050 - 1500)	N-12 (split band or bell-coupling)	1.5	382 (117)	497 (152)	764 (233)
4 - 24 (100 - 600)	N-12 ST or N-12 WT (Bell & Spigot)	1.5	n/a	(152)	(233)
30 - 60 (750 - 1500)	N-12 ST or N-12 WT (Bell & Spigot)	1	n/a	745 (226)	1148 (350)
12 - 60 (300 - 1500)	HP Storm, Split Bell (retained bell & spigot)	3	n/a	248 (76)	382 (116)

Bend radii obtained with joint installations only. Calculations do not assume any bend in the pipe wall. Joint deflections based on joint profiles and accounts for possible field variances.



- SINGLE NUMBER 16 INLET NOTES:**
- FOR PAYMENT PURPOSES, INLET STRUCTURES SHALL ALSO INCLUDE 2'-0" CURB & GUTTER TRANSITION SECTION AT EACH END OF INLET PLUS SIDEWALK SECTIONS WHERE REQUIRED BEHIND INLET STRUCTURE AND TRANSITION SECTIONS.
 - SUB-GRADE SHALL BE 6-12" OF CLASS B BEDDING COMPACTED PER WPM STANDARD CONSTRUCTION SPECIFICATIONS. ON SUITABLE, UNDISTURBED MATERIAL, IF SUBGRADE IS UNSUITABLE, THE SUBGRADE SHALL BE OVERCUT AND STABILIZED WITH CLASS B BEDDING PER WPM STANDARD CONSTRUCTION SPECIFICATIONS.
 - FLOOR SLOPE MAY BE PAURED MONOLITHIC WITH BASE.
 - SC = SLOPE OF CONNECTOR = 2% MIN.
 - UNLESS OTHERWISE SPECIFIED ON THE DRAWINGS OR OTHERWISE APPROVED, ALL NO. 16 INLETS SHALL BE CONSTRUCTED WITH AN ADJUSTABLE CAST IRON CURB BOX (S-716).
 - DESIGN CONDITIONS FOR INLET ALLOWS DEPTHS OF 12'-0" (MAX.), FOR INLETS MORE THAN 12'-0" FEET IN DEPTH, SHOP DRAWINGS AND DESIGN ANALYSIS SHALL BE SUBMITTED FOR APPROVAL.
 - ALL REINFORCING STEEL SHALL BE ASTM, A-615, GRADE 60 DEFORMED BARS, DIAMETER OF BEND MEASURED ON THE INSIDE OF THE BAR SHALL BE A MINIMUM OF 8 BAR DIAMETER.
 - ALL SHALL CONFORM TO ASPH/TO LIFTED BRIDGE DESIGN SPECIFICATIONS, 8TH EDITION, 2017.
 - NO FORMWORK SHALL REMAIN INSIDE STRUCTURE WHEN COMPLETE.
 - CONCRETE MIX FOR GUTTER AND ANY ADDED STREET PANELS SHALL MEET CLASS 2 REQUIREMENTS FOR SULFATE RESISTANCE IN ACCORDANCE WITH COTD STANDARD 801.04 ON STREETS WHERE MAGNESIUM CHLORIDE DEICERS ARE APPLIED. REFER TO WPM STANDARD CONSTRUCTION SPECIFICATIONS SECTION 11 FOR REQUIREMENTS FOR SULFATE RESISTANCE IN CONCRETE EXPOSED TO EARTH.
 - SPLICING OF REINFORCING STEEL SHALL BE PERMITTED ONLY WHERE DETAILED IN DRAWINGS.
 - INLET WALLS SHALL BE FORMED BOTH INSIDE AND OUTSIDE. CASTING OF SIDEWALLS AGAINST EARTH IS NOT PERMITTED.
 - LEAN CONCRETE FILL TO BE FC = 2000 PSI. INLET STRUCTURE, LID, STREET CURB AND GUTTER, AND PAVEMENT TO BE FC = 4500 PSI MAX W/C = 0.45 AND AIR ENTRAINED 2% TO 3%. FC = 28 DAY COMPRESSIVE STRENGTH REQUIREMENT FOR MAX DESIGN, FIELD ACCEPTANCE.
 - FOR THROUGH STRUCTURES, BENCHES MUST COME TO TOP OF PIPE.
 - NO CORNER PENETRATIONS ON STRUCTURE.
 - SEE WPM STANDARD CONSTRUCTION SPECIFICATIONS SECTION 11.04 STORM INLETS FOR MORE INFORMATION. USE OF THIS DETAIL WITHOUT SPECIFICATIONS SHALL BE CONSIDERED NON-COMPLIANT.
 - SEE S-616.2 FOR REBAR PLACEMENT AT WALL PENETRATION DETAIL.
 - REFER TO "TRANSPORTATION STANDARDS AND DETAILS FOR THE ENGINEERING DIVISION" FOR ADJACENT ROADWAY AND SIDEWALK DESIGN CRITERIA.



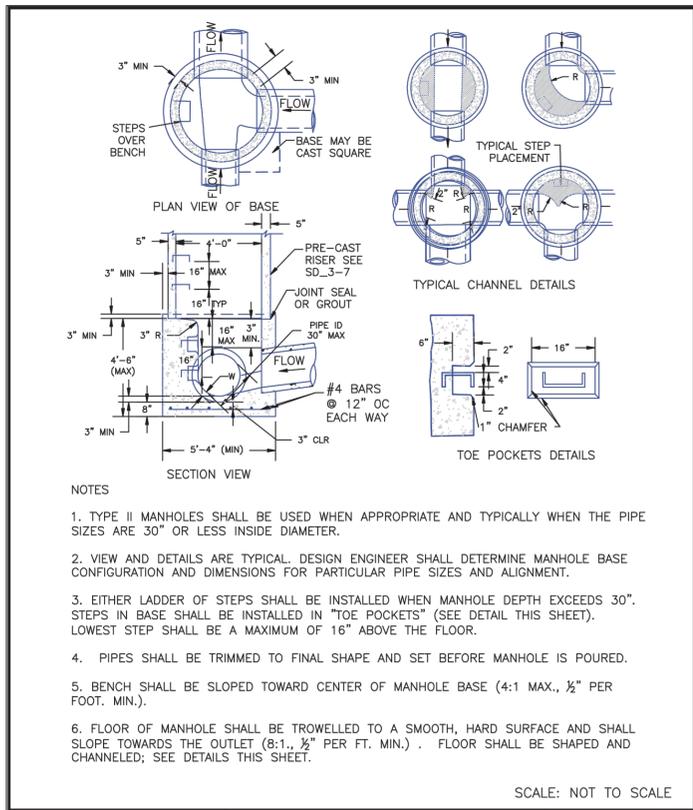
TRIPLE NUMBER 16 INLET NOTES:

- SEE WPM STANDARD CONSTRUCTION SPECIFICATIONS SECTION 11.05 STORM INLETS FOR MORE INFORMATION. USE OF THIS DETAIL WITHOUT SPECIFICATIONS SHALL BE CONSIDERED NON-COMPLIANT.
- SEE GENERAL NOTES ON S-616.1.
- EXPANSION JOINT MATERIAL SHALL BE PLACED FULL DEPTH OF THE CURB AND GUTTER, SIDEWALK, CONCRETE PAVEMENT, AS APPLICABLE. THE TOP PORTION OF THE JOINT SHALL BE SEALED WITH SILICONE SEALANT.
- SEE S-616.2 FOR REBAR PLACEMENT AROUND CONNECTOR PIPE.

* STANDARD DETAIL S-716 APPLIES TO ALL OF THE GRATE & FRAME GEOMETRIC DIMENSIONS FOR THE TRIPLE NUMBER 16 INLET EXCEPT FOR THE FRAME LENGTH. FRAME LENGTH SHOULD BE MANUFACTURED FOR THE DIMENSIONS CALLED OUT ON THIS SHEET.

TABLE 10. NO. 16 TOTAL INLET LENGTH		
INLET CONFIGURATION	L ₁ OR L ₂ INLET LENGTH	E ₁ OR E ₂ TOTAL BOTTOM SLAB LENGTH
TRIPLE NO. 16	10'-11"	12'-0"
NO. 16 3-3-2 (EXAMPLE CONFIGURATION)	10'-11", 10'-11", 7'-1"	32'-1"
NO. 16 (CONFIGURATION TEMPLATE)	L ₁	= 3' + E ₁ + L ₁ + E ₂ + L ₂ + E ₂ + 3'

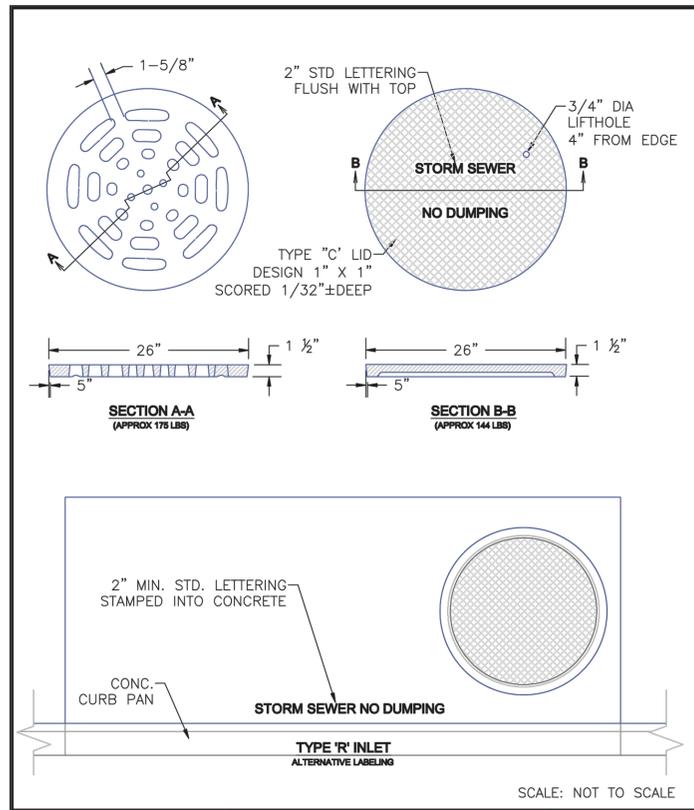
* MAX. BOTTOM SLAB LENGTH = 75'-0"



- NOTES**
- TYPE II MANHOLES SHALL BE USED WHEN APPROPRIATE AND TYPICALLY WHEN THE PIPE SIZES ARE 30" OR LESS INSIDE DIAMETER.
 - VIEW AND DETAILS ARE TYPICAL. DESIGN ENGINEER SHALL DETERMINE MANHOLE BASE CONFIGURATION AND DIMENSIONS FOR PARTICULAR PIPE SIZES AND ALIGNMENT.
 - EITHER LADDER OF STEPS SHALL BE INSTALLED WHEN MANHOLE DEPTH EXCEEDS 30". STEPS IN BASE SHALL BE INSTALLED IN "TOE POCKETS" (SEE DETAIL THIS SHEET). LOWEST STEP SHALL BE A MAXIMUM OF 16" ABOVE THE FLOOR.
 - PIPES SHALL BE TRIMMED TO FINAL SHAPE AND SET BEFORE MANHOLE IS PAURED.
 - BENCH SHALL BE SLOPED TOWARD CENTER OF MANHOLE BASE (4:1 MAX., 1/2" PER FOOT. MIN.).
 - FLOOR OF MANHOLE SHALL BE TROWELLED TO A SMOOTH, HARD SURFACE AND SHALL SLOPE TOWARDS THE OUTLET (8:1, 1/2" PER FT. MIN.). FLOOR SHALL BE SHAPED AND CHANNELLED; SEE DETAILS THIS SHEET.

SCALE: NOT TO SCALE

STORM SEWER MANHOLE DETAIL
TYPE II SD 3-2



STORM SEWER MANHOLE L
LID DETAILS SD 3-2

SCALE: NOT TO SCALE

update
note revised



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FOR BURIED UTILITY INFORMATION 48 HRS BEFORE YOU DIG CALL 1-800-922-1987

CLEARWAY FILING NO. 2, LOT 5
STORM SEWER DETAILS

PROJECT NO. 44-042A
DATE: 06-02-2022

DESIGNED BY: DLM
DRAWN BY: CLP
CHECKED BY: DLM

HORIZONTAL: N/A
VERTICAL: N/A

SHEET 12 OF 15
ST07

212 N. WAHATCH AVE, STE 305
COLORADO SPRINGS CO 80903
PHONE 719.555.5485

CIVIL CONSULTANTS, INC.

VIRGIL A. SANCHEZ, COLORADO P.E. NO. 371160

FOR AND ON BEHALF OF
MKS CIVIL CONSULTANTS, INC.

REVISIONS:
NO. DATE BY DESCRIPTION

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CAUTION

3299CGSQSB

APPROX. GRATE DRAIN AREA = 551.25 SQ IN
APPROX. WEIGHT WITH FRAME = 249.00 LBS

TOP OF BASE PLATE TO TOP OF DRAIN BASIN

12BASEG:	2.82
15BASEG:	2.82
18BASEG:	2.82
24BASEG:	2.82
30BASEG:	.38

*WEIGHT DOES NOT INCLUDE DUCTILE IRON BASE PLATE

12BASEG:	APPROX. 109.00 LBS
15BASEG:	APPROX. 88.00 LBS
18BASEG:	APPROX. 85.00 LBS
24BASEG:	APPROX. 93.00 LBS
30BASEG:	APPROX. 82.00 LBS

DRAWN BY:	CJA	MATERIAL:	
DATE:	03-28-03		
REVISED BY:	CCA	PROJECT NO./NAME:	
DATE:	09-04-13		
DWG SIZE:	A	SCALE:	1:10
SHEET:	1 OF 1		

Nyloplast 3130 VERONA AVE, BURFORD, GA 30919, P/N (770) 932-2443, F/N (770) 932-2499, www.nyloplast-usa.com

TITLE: 2 FT X 2 FT STEEL BAR GRATE ASSEMBLY
DWG NO. 7001-110-258 REV F

ALL DIMENSIONS IN INCHES UNLESS NOTED OTHERWISE. GRATE MEETS H-20 LOAD RATING. QUALITY: FRAME & GRATE MATERIALS SHALL CONFORM TO ASTM A-36 STEEL. BASE PLATE MATERIALS SHALL CONFORM TO ASTM A536 GRADE 70-50-05 DUCTILE IRON. LOCKING DEVICE AVAILABLE UPON REQUEST SEE DRAWING NO. 7001-110-256.

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NYLOPLAST DRAIN BASIN WITH 2 FT X 2 FT STEEL BAR GRATE

(1) INTEGRATED DUCTILE IRON BASE PLATE TO MATCH BASIN O.D.

(2) STEEL BAR FRAME & GRATE

(3) VARIABLE INVERT HEIGHTS AVAILABLE (ACCORDING TO PLANS/TAKE OFF)

(4) VARIOUS TYPES OF INLET & OUTLET ADAPTERS AVAILABLE: 4" x 30" FOR CORRUGATED HDPE, ADS N-12/HANCOR DUAL WALL, ADS/HANCOR SINGLE WALL, N-12 HP, PVC SEWER (EX. SDR 35), N-12 HP, & PVC SEWER (4" - 24"). ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 300° TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-110-012.

(5) ADAPTER ANGLES VARIABLE 0° - 300° ACCORDING TO PLANS

TRAFFIC LOADS: CONCRETE SLAB DIMENSIONS ARE FOR GUIDELINE PURPOSES ONLY. ACTUAL CONCRETE SLAB MUST BE DESIGNED TAKING INTO CONSIDERATION LOCAL SOIL CONDITIONS, TRAFFIC LOADING, & OTHER APPLICABLE DESIGN FACTORS.

THE BACKFILL MATERIAL SHALL BE CRUSHED STONE OR OTHER GRANULAR MATERIAL MEETING THE REQUIREMENTS OF CLASS I, CLASS II, OR CLASS III MATERIAL AS DEFINED IN ASTM D2321. BEDDING & BACKFILL FOR SURFACE DRAINAGE INLETS SHALL BE PLACED & COMPACTED UNIFORMLY IN ACCORDANCE WITH ASTM D2321.

DRAWN BY:	ECB	MATERIAL:	
DATE:	03-22-10		
REVISED BY:	NMH	PROJECT NO./NAME:	
DATE:	03-16-16		
DWG SIZE:	A	SCALE:	1:40
SHEET:	1 OF 1		

Nyloplast 3130 VERONA AVE, BURFORD, GA 30919, P/N (770) 932-2443, F/N (770) 932-2499, www.nyloplast-usa.com

TITLE: DRAIN BASIN WITH 2 FT X 2 FT STEEL BAR GRATE QUICK SPEC INSTALLATION DETAIL
DWG NO. 7001-110-304 REV D

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NYLOPLAST 24" DRAIN BASIN: 2824AG __X

(1, 2) INTEGRATED DUCTILE IRON FRAME & GRATE TO MATCH BASIN O.D.

(3) VARIABLE INVERT HEIGHTS AVAILABLE (ACCORDING TO PLANS/TAKE OFF)

(4) VARIOUS TYPES OF INLET & OUTLET ADAPTERS AVAILABLE: 4" x 24" FOR CORRUGATED HDPE, ADS N-12/HANCOR DUAL WALL, ADS/HANCOR SINGLE WALL, N-12 HP, PVC SEWER (EX. SDR 35), PVC DWV (EX. SCH 40), PVC C900/C905, CORRUGATED & RIBBED PVC

(5) ADAPTER ANGLES VARIABLE 0° - 300° ACCORDING TO PLANS

TRAFFIC LOADS: CONCRETE SLAB DIMENSIONS ARE FOR GUIDELINE PURPOSES ONLY. ACTUAL CONCRETE SLAB MUST BE DESIGNED TAKING INTO CONSIDERATION LOCAL SOIL CONDITIONS, TRAFFIC LOADING, & OTHER APPLICABLE DESIGN FACTORS. SEE DRAWING NO. 7001-110-111 FOR NON TRAFFIC INSTALLATION.

THE BACKFILL MATERIAL SHALL BE CRUSHED STONE OR OTHER GRANULAR MATERIAL MEETING THE REQUIREMENTS OF CLASS I, CLASS II, OR CLASS III MATERIAL AS DEFINED IN ASTM D2321. BEDDING & BACKFILL FOR SURFACE DRAINAGE INLETS SHALL BE PLACED & COMPACTED UNIFORMLY IN ACCORDANCE WITH ASTM D2321.

GRATE OPTIONS	LOAD RATING	PART #	DRAWING #
PEDESTAL	MEETS H-10	2499-001	7001-110-016
STANDARD	MEETS H-20	2499-005	7001-110-217
SOLID COVER	MEETS H-20	2499-003	7001-110-016
SCAFF	N/A	2499-002	7001-110-219
DROP IN GRATE	LIGHT DUTY	2499-013	7001-110-015

DRAWN BY:	ECB	MATERIAL:	
DATE:	04-03-06		
REVISED BY:	NMH	PROJECT NO./NAME:	
DATE:	03-14-16		
DWG SIZE:	A	SCALE:	1:40
SHEET:	1 OF 1		

Nyloplast 3130 VERONA AVE, BURFORD, GA 30919, P/N (770) 932-2443, F/N (770) 932-2499, www.nyloplast-usa.com

TITLE: 24 IN DRAIN BASIN QUICK SPEC INSTALLATION DETAIL
DWG NO. 7001-110-192 REV E

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ALTERNATIVE FOR TYPE II 4' DIA MANHOLES

LIID & FRAME DESIGNED BY ENGINEER FOR ANTICIPATED LOADS. FRAME TO BE SUPPORTED BY CONCRETE COLLAR

ASPHALT OR TURF

NYLOPLAST 30" FRAME AND GRATE COVER

(2) CONCRETE COLLAR (BY OTHERS) REINFORCING AS SPECIFIED BY DESIGN ENGINEER

MIN. AS SPECIFIED BY OTHERS, BUT NOT LESS THAN 8" (200mm)

MIN. AS SPECIFIED BY OTHERS, BUT NOT LESS THAN 12" (400mm)

MIN. AS SPECIFIED BY OTHERS, BUT NOT LESS THAN 18" (450mm)

WIDTH OF BACKFILL: 18" MINIMUM

HP PIPE STUB: SPECIFY DIAMETER, LOCATION & CONNECTION TYPE

48" ADS TRIPLE WALL POLYPROPYLENE RISER

CLASS II BACKFILL & BEDDING PER ASTM D2321. MATERIAL SHALL BE WELL PLACED UNIFORMLY AROUND STRUCTURE AND INLET CONNECTIONS AND COMPACTED IN MAX. LIFTS

VARIABLES: 6" (150MM) MINIMUM

BEDDING THICKNESS MUST BE SPECIFIED BY DESIGN ENGINEER TO BE ADEQUATE SUPPORT FOR LOADING AND SOIL CONDITIONS, BUT NOT LESS THAN 6" (150MM)

DRAWN BY:	NMH	MATERIAL:	
DATE:	10-07-17		
APPROVED BY:	NMH	PROJECT NO./NAME:	
DATE:	10-07-17		
DWG SIZE:	A	SCALE:	1:40
SHEET:	1 OF 1		

Nyloplast 3130 VERONA AVE, BURFORD, GA 30919, P/N (770) 932-2443, F/N (770) 932-2499, www.nyloplast-usa.com

TITLE: 48" HP MANHOLE INSTALLATION DETAIL
DWG NO. 7001-110-027 REV A

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ALTERNATIVE FOR TYPE II 4' DIA MANHOLES

note revised

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FOR BURIED UTILITY INFORMATION 48 HRS BEFORE YOU DIG CALL 1-800-922-1987

CLEARWAY FILING NO. 2, LOT 5

STORM SEWER DETAILS

PROJECT NO. 44-042A DATE: 06-02-2022

SCALE: HORIZONTAL: N/A VERTICAL: N/A

DESIGNED BY: DLM DRAWN BY: CLP CHECKED BY: DLM

ST08 SHEET 13 OF 15

217 N. WAHATCH AVE, STE 305
COLORADO SPRINGS, CO 80903
PHONE 719.955.5485

CIVIL CONSULTANTS, INC.

VIRGIL A. SANCHEZ, COLORADO, P.E. NO. 371160

FOR AND ON BEHALF OF MRS. CIVIL CONSULTANTS, INC.

REVISIONS: NO. DATE BY DESCRIPTION

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CAUTION

LEGEND

- EX EXISTING
- FUT FUTURE
- PROP PROPOSED
- PROF MAJ CONT
- PROF MIN CONT
- EXIST MAJ CONT
- EXIST MIN CONT

POND 1 SAND FILTER DETENTION BASIN DATA

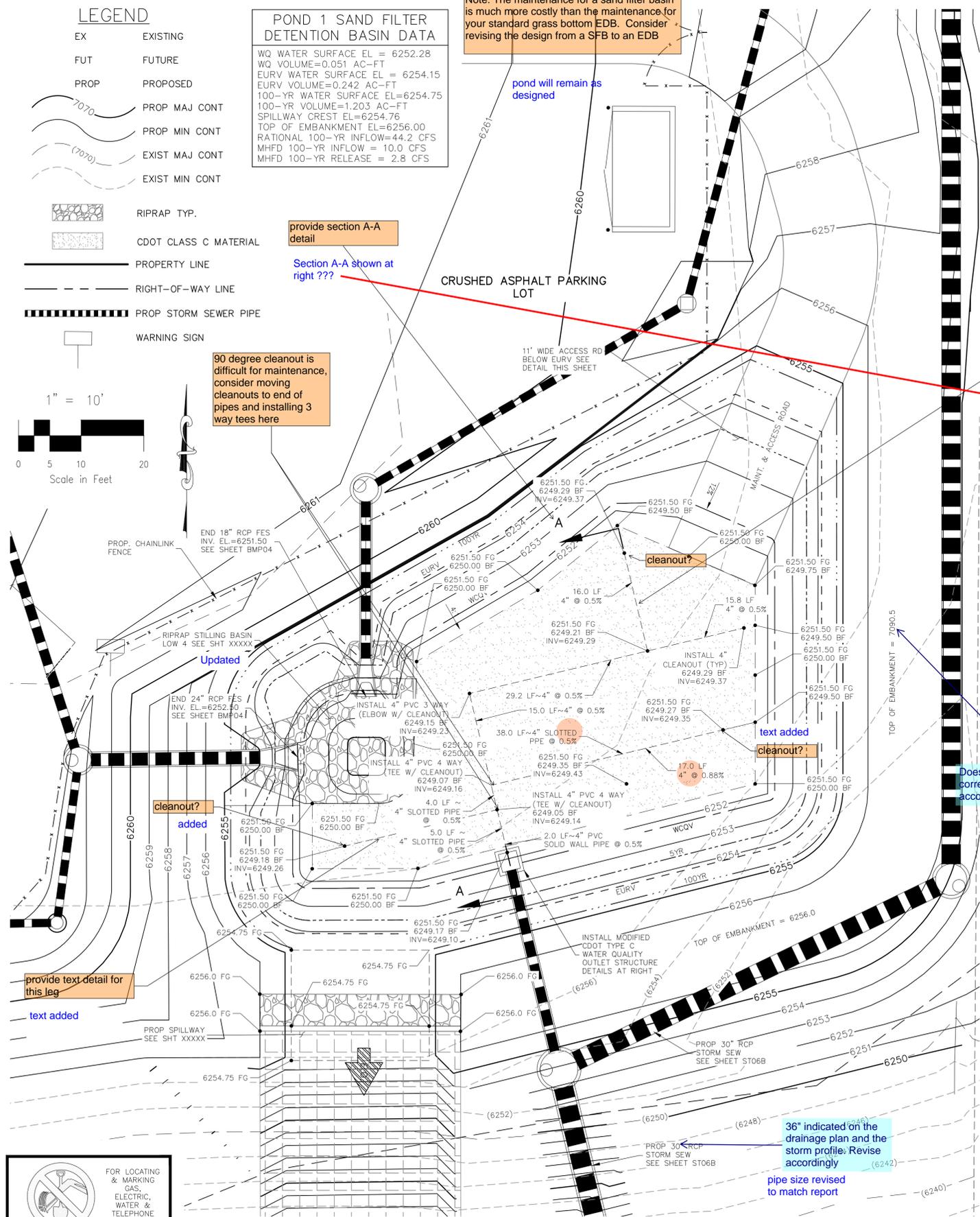
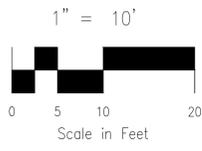
WQ WATER SURFACE EL = 6252.28
WQ VOLUME=0.051 AC-FT
EURV WATER SURFACE EL = 6254.15
EURV VOLUME=0.242 AC-FT
100-YR WATER SURFACE EL=6254.75
100-YR VOLUME=1.203 AC-FT
SPILLWAY CREST EL=6254.76
TOP OF EMBANKMENT EL=6256.00
RATIONAL 100-YR INFLOW=44.2 CFS
MHFD 100-YR INFLOW = 10.0 CFS
MHFD 100-YR RELEASE = 2.8 CFS

Note: The maintenance for a sand filter basin is much more costly than the maintenance for your standard grass bottom EDB. Consider revising the design from a SFB to an EDB

provide section A-A detail

Section A-A shown at right ???

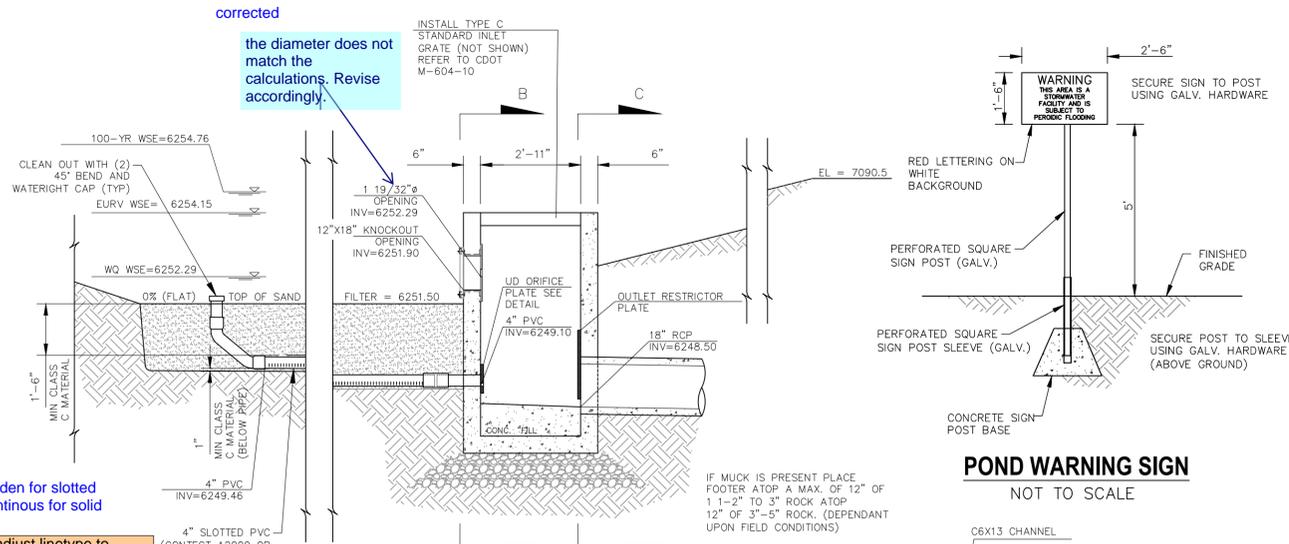
90 degree cleanout is difficult for maintenance, consider moving cleanouts to end of pipes and installing 3 way tees here



FULL SPECTRUM DETENTION SAND FILTER POND 1

SITE PLAN

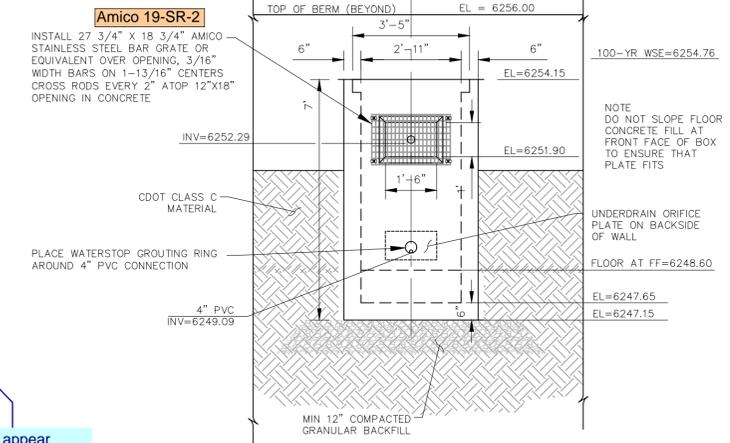
SCALE 1"=10'



MODIFIED CDOT TYPE C FULL SPECTRUM OUTLET BOX AND SAND FILTER

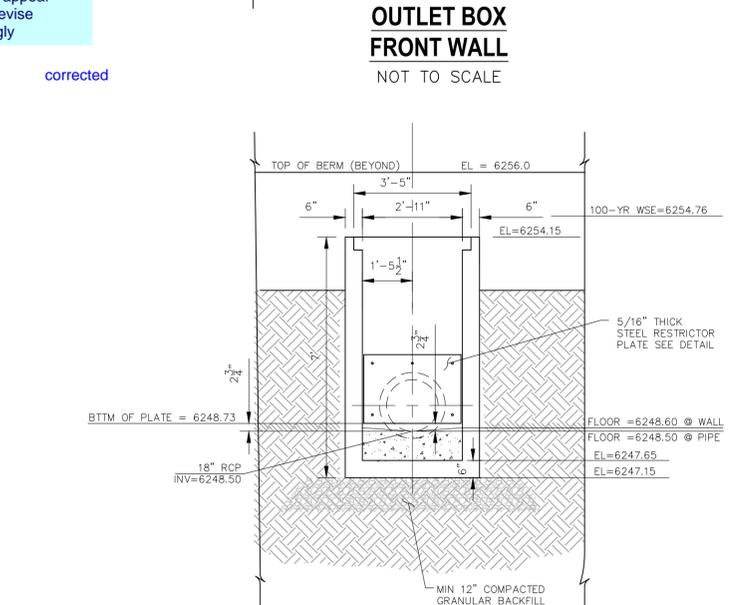
SECTION A-A

NOT TO SCALE



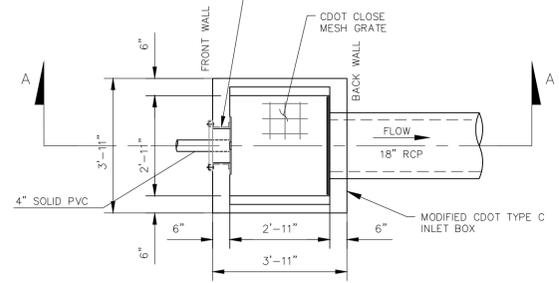
OUTLET BOX FRONT WALL

NOT TO SCALE



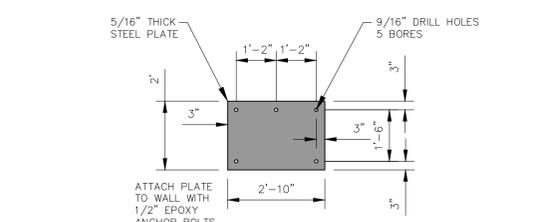
OUTLET BOX REAR WALL

NOT TO SCALE



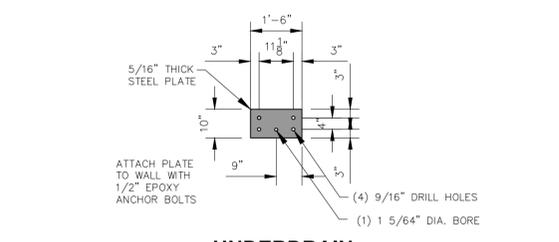
MODIFIED CDOT TYPE C PLAN

NOT TO SCALE



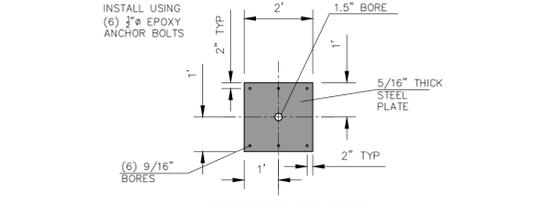
RESTRICTOR PLATE FOR 18" RCP OUTLET

NOT TO SCALE



UNDERDRAIN ORIFICE PLATE

NOT TO SCALE



ORIFICE PLATE FOR 12"x18" OPENING

NOT TO SCALE

CLEARWAY FILING NO. 2, LOT 5

OUTLET STRUCTURE POND 1 DETAILS

PROJECT NO. 44-042A DATE: 06-02-2022

SCALE: HORIZONTAL: 1"=50' VERTICAL: 1"=5'

DESIGNED BY: CLP DRAWN BY: DLM CHECKED BY: DLM

217 N. WASHATCH AVE., STE 305
COLORADO SPRINGS, CO 80903
PHONE: 719.555.5485

CIVIL CONSULTANTS, INC.

FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.

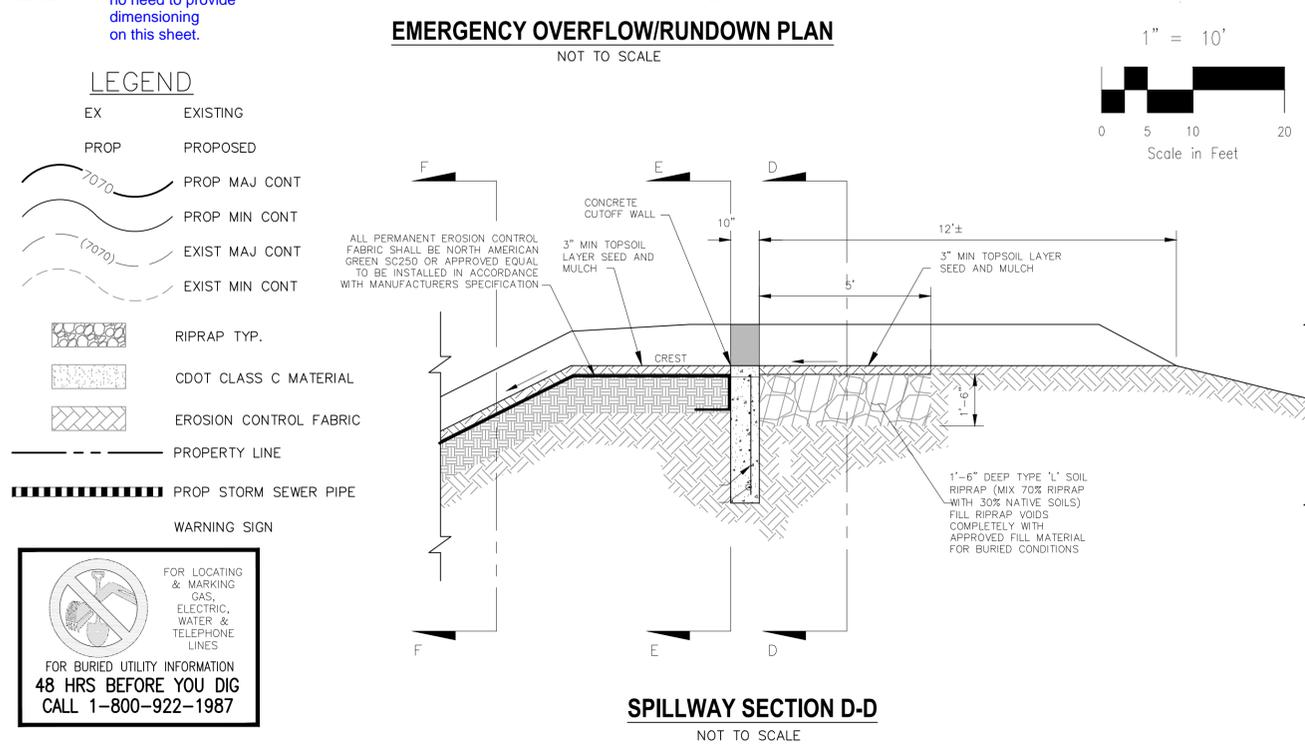
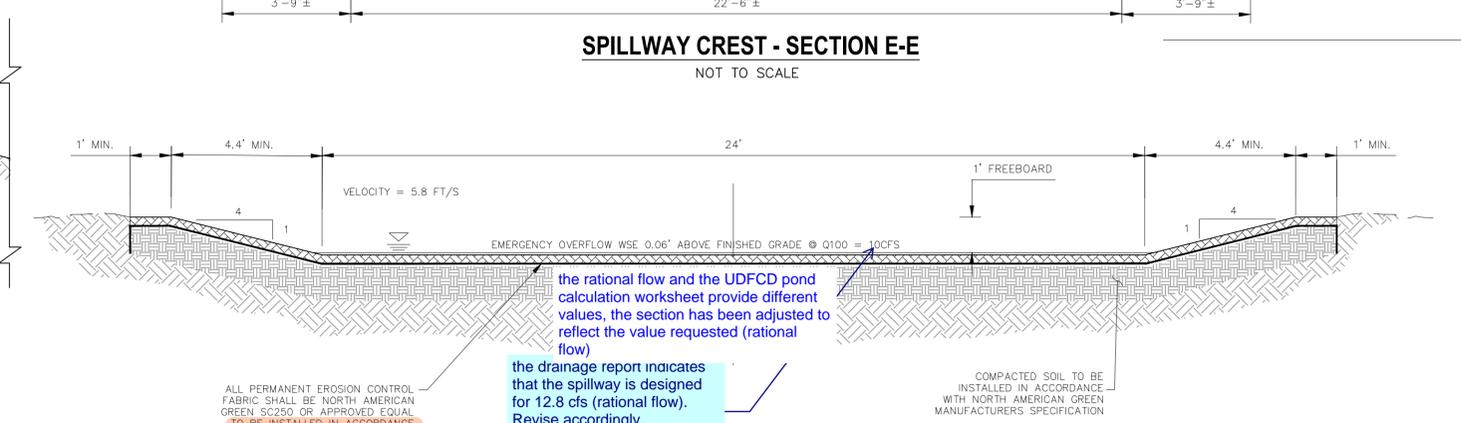
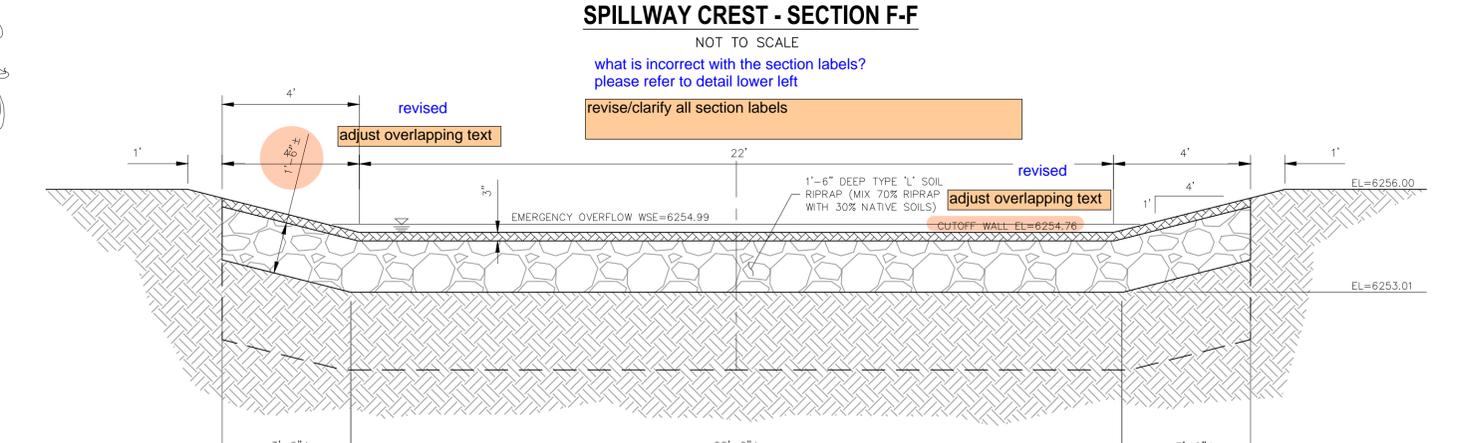
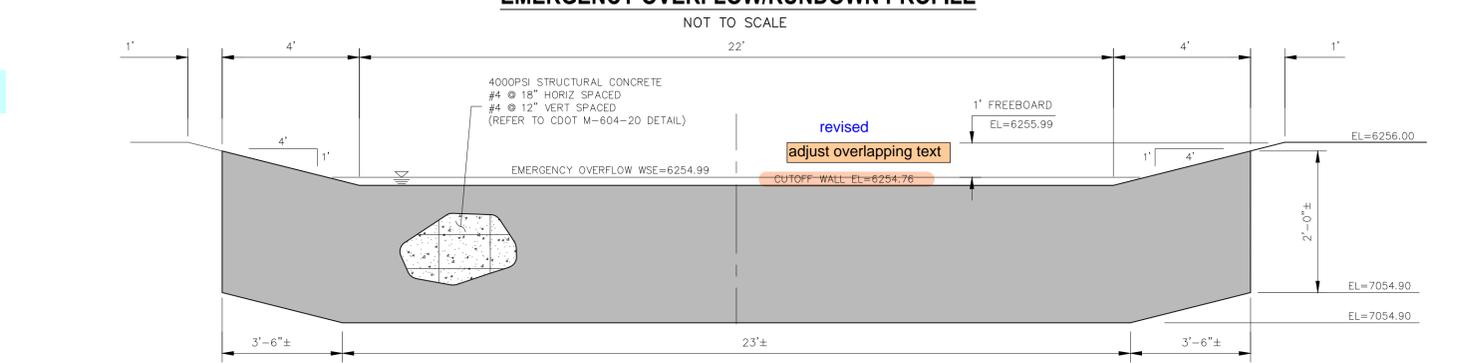
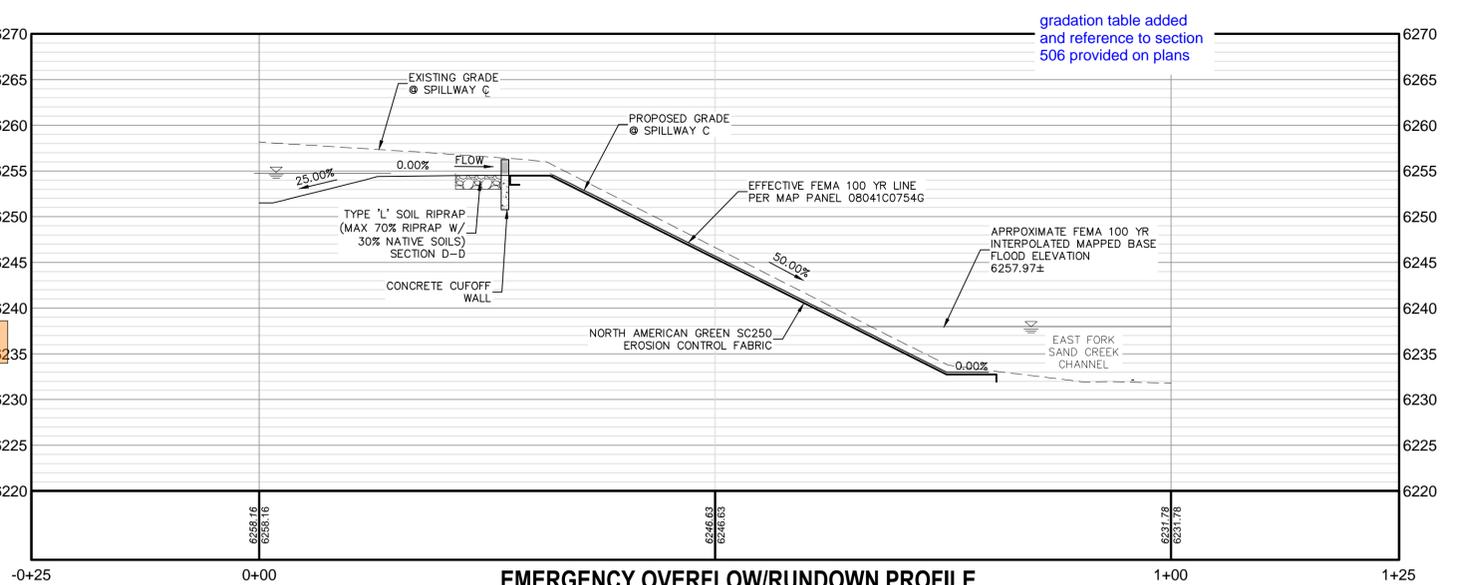
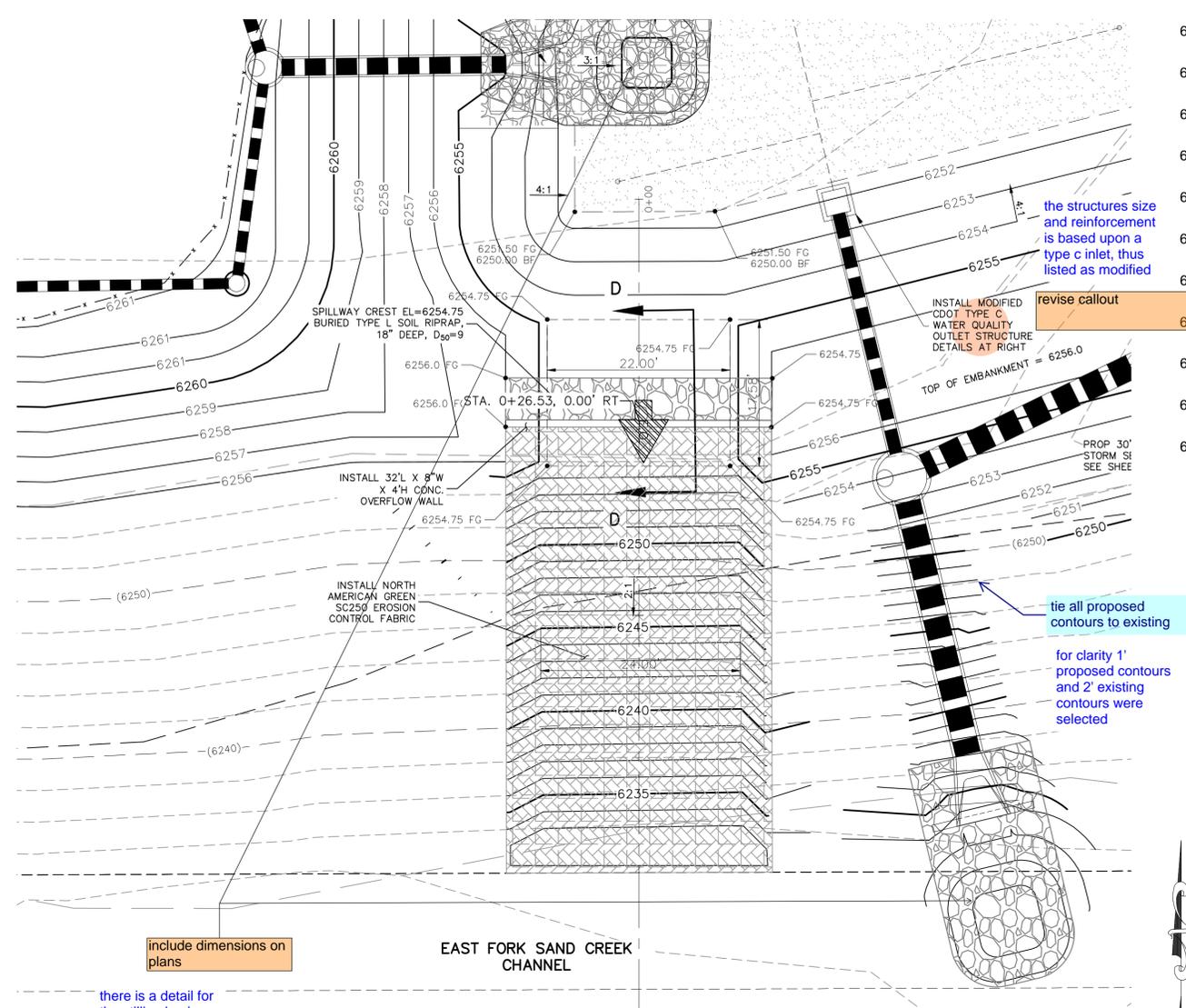
REVISIONS: NO. DATE: BY: DESCRIPTION:

DATE: APPROV. BY:

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CAUTION

File: C:\44042A-Wre Nut\Hammers\DWG\Const\DWG\BMP\44042A_BMP01.dwg Plotstamp: 6/3/2022 9:19 PM



CLEARWAY FILING NO. 2, LOT 5
 OUTLET STURCTURE POND 1 DETAILS
 PROJECT NO. 44-042A
 DATE: 06-02-2022
 SCALE: HORIZONTAL: 1"=50' VERTICAL: 1"=5'
 DESIGNED BY: DLM
 DRAWN BY: CLP
 CHECKED BY: DLM

102 E. PINE PEAK AVE., 5TH FLOOR
 COLORADO SPRINGS, CO 80903
 PHONE: 719.955.5485

M&S CIVIL CONSULTANTS, INC.

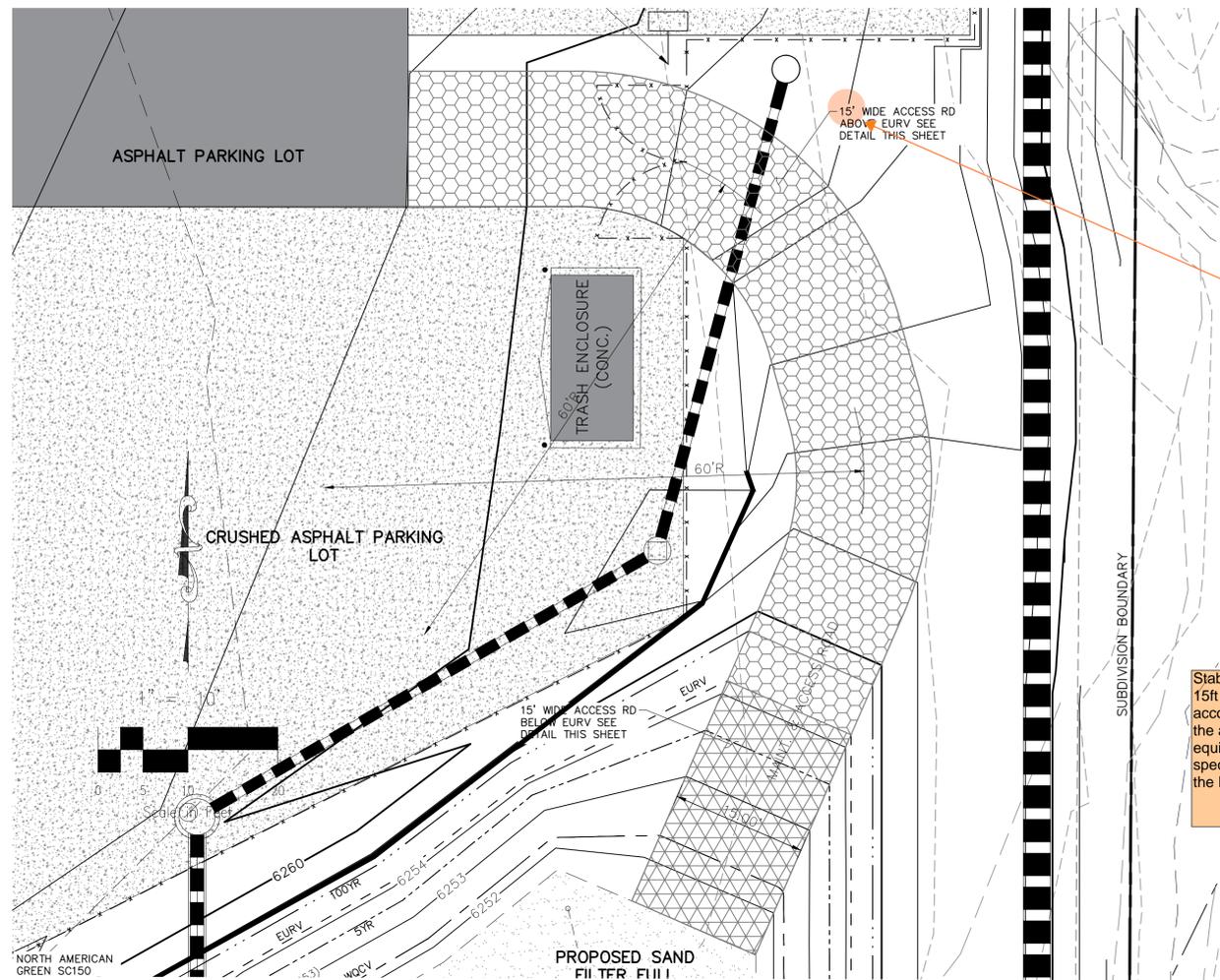
VIRGIL A. SANCHEZ, COLORADO P.E. NO. 371160

FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.

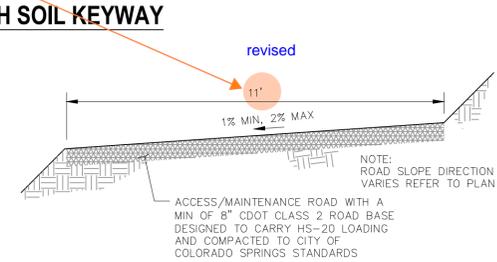
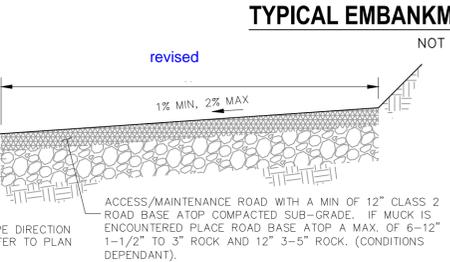
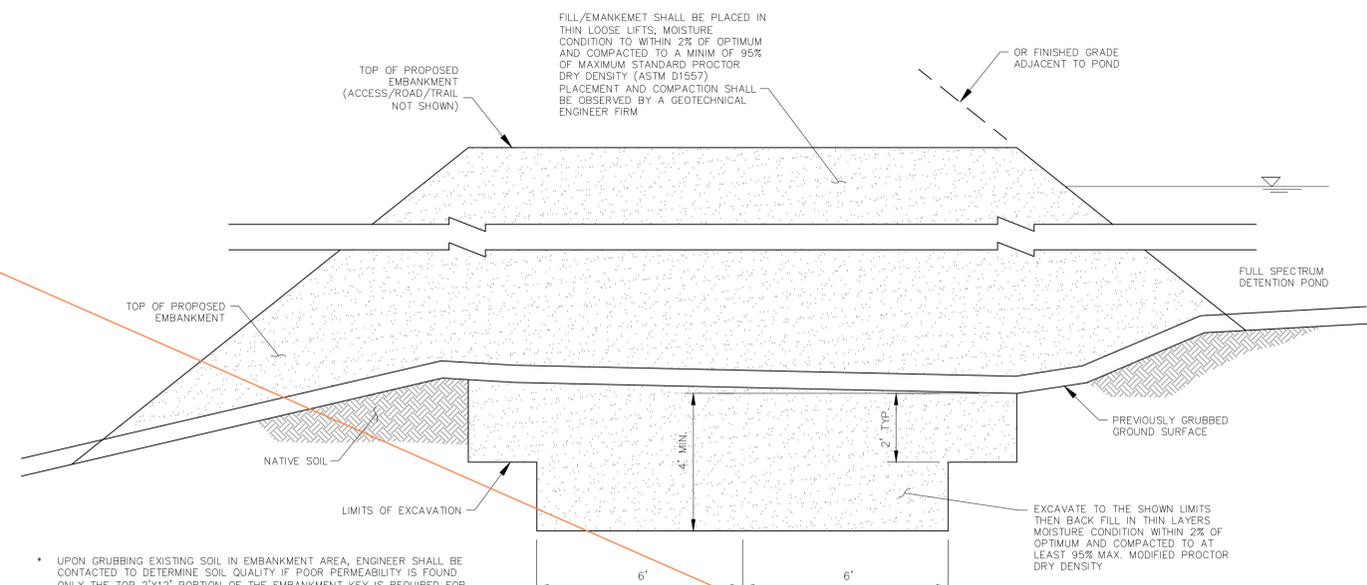
REVISIONS:
 NO. DATE BY DESCRIPTION

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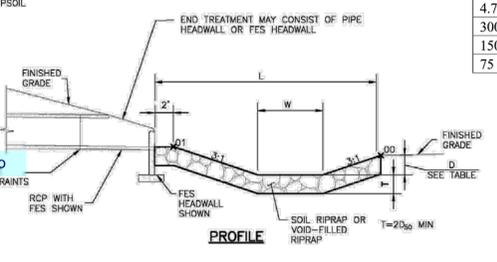
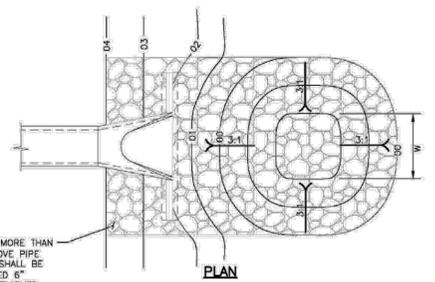
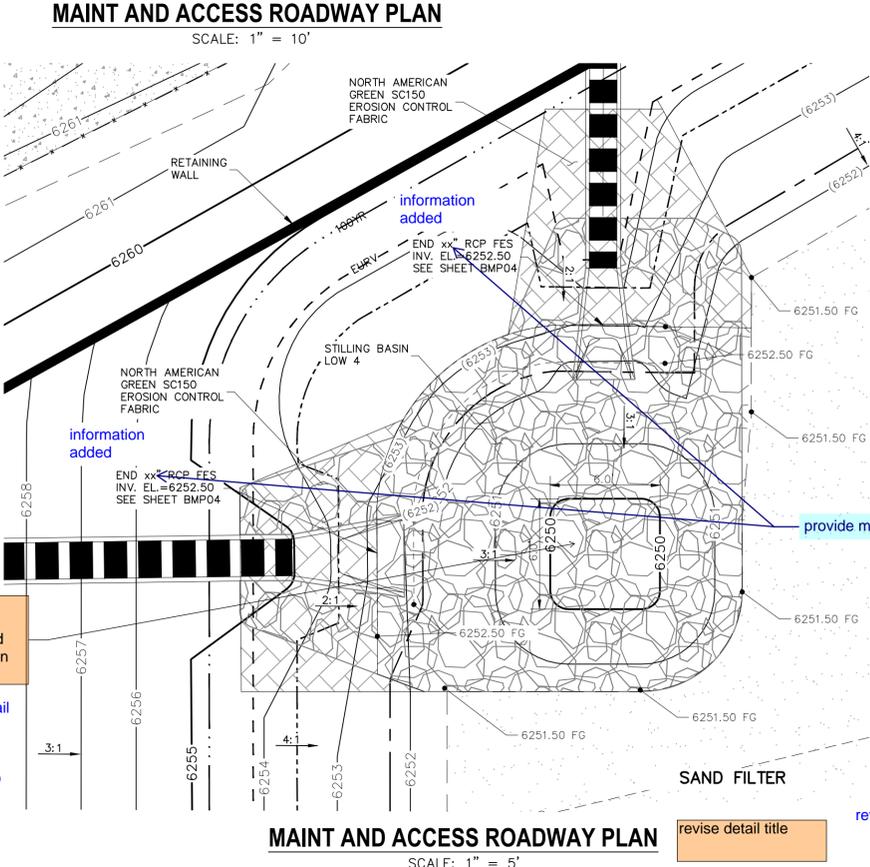
CAUTION



Stabilized access ramp shall be a minimum of 15ft wide and no greater than 12% slope, in accordance with DCMv1, Chap 11.2.2. --Unless the anticipated maintenance vehicles and equipment can safely access the pond at specified road width. Properly document this in the Pond O&M manual.



- LEGEND**
- EX EXISTING
 - PROP PROPOSED
 - 7070 PROP MAJ CONT
 - (7070) PROP MIN CONT
 - EXIST MAJ CONT
 - EXIST MIN CONT
 - RIPRAP TYP.
 - MAINTENANCE/ACCESS ROAD ABOVE EURV
 - MAINTENANCE/ACCESS ROAD BELOW EURV
 - PROPERTY LINE
 - PROP STORM SEWER PIPE



PIPE SIZE OR BOX HEIGHT	D	W	L
18" - 24"	1'-0"	4'	15'
30" - 36"	1'-6"	6'	20'
42" - 48"	2'-0"	7'	24'
54" - 60"	2'-6"	8'	28'
66" - 72"	3'-0"	9'	32'

* IF OUTLET PIPE IS A BOX CULVERT WITH A WIDTH GREATER THAN W, THEN W = CULVERT WIDTH

Figure 9-37. Low tailwater riprap basin

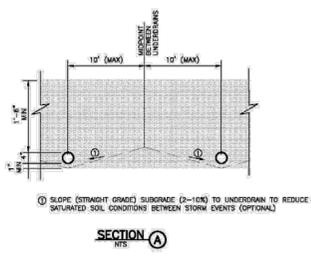
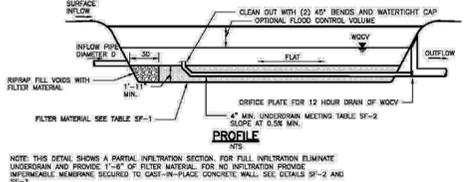
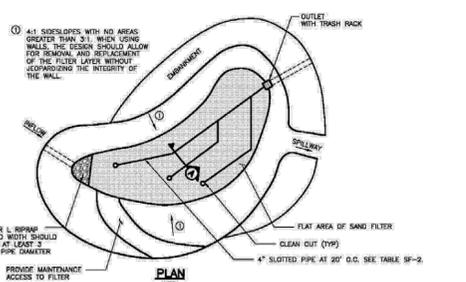
Table SF-1. Gradation Specifications for CDOT Class C Filter Material (Source: CDOT Table 703-7)

Sieve Size	Mass Percent Passing Square Mesh Sieves
19.0 mm (3/4")	100
4.75 mm (No. 4)	60 - 100
300 µm (No. 50)	10 - 30
150 µm (No. 100)	0 - 10
75 µm (No. 200)	0 - 3

Table SF-2. Dimensions for Slotted Pipe

Pipe Size	Slot Length ¹	Maximum Slot Width	Slot Centers ¹	Open Area ¹ (per foot)
4"	1-1/16"	0.032"	0.413"	1.90 in ²
6"	1-3/8"	0.032"	0.516"	1.98 in ²

¹ Some variation in these values is acceptable and is expected from various pipe manufacturers. Be aware that both increased slot length and decreased slot centers will be beneficial to hydraulics but detrimental to the structure of the pipe.



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provide sizing calculations in drainage report and show dimensions on plans
sized per detail at right there are enough dimensions to adequately construct

revise detail title

CLEARWAY FILING NO. 2, LOT 5
OUTLET STURCTURE POND 1 DETAILS
PROJECT NO. 44-042A
DATE: 06-02-2022
SCALE: HORIZONTAL: 1"=50' VERTICAL: 1"=5'
DESIGNED BY: DLM
DRAWN BY: CLP
CHECKED BY: DLM

102 E. PINE PEAK AVE. 5TH FLOOR
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485

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VIRGIL A. SANCHEZ, COLORADO, P.E. NO. 371160

NO. DATE: BY: DESCRIPTION: APPROV. BY: DATE:

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CAUTION