

# BENT GRASS RESIDENTIAL FILING NO. 2

## COUNTY OF EL PASO, STATE OF COLORADO

# CONSTRUCTION PLANS

## AUGUST 2019

### 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 SHALL TAKE THE NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES FROM DAMAGE DUE TO THIS OPERATION. ANY DAMAGE TO THE UTILITIES WILL BE REPLACED AT THE CONTRACTORS 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 TO THE SOILS ENGINEERS RECOMMENDATIONS, AND APPROVED BY EL PASO COUNTY DEVELOPMENT SERVICES ENGINEERING DIVISION.
- ALL STATIONING IS CENTERLINE UNLESS OTHERWISE INDICATED. ALL ELEVATIONS ARE FLOW LINE UNLESS OTHERWISE INDICATED.
- ALL DISTURBED PAVEMENT EDGES SHALL BE CUT TO NEAT LINES. REPAIR SHALL CONFORM TO THE EPC ECM APPENDIX K-1-2C.
- ALL INTERSECTION ACCESSSES TO BE CONSTRUCTED WITH A 25 FOOT SIGHT VISIBILITY TRIANGLES AND THERE SHALL BE NO OBSTRUCTIONS GREATER THAN 18" IN THIS AREA.
- ALL CULVERT AND STORM PIPES SHALL BE SMOOTH INTERIOR CORRUGATED POLYETHYLENE PIPE (HDPE), OR 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 OWNERS GEOTECHNICAL ENGINEER TO SUPPORT MINIMUM 50 YEAR DESIGN LIFE. CULVERTS MUST CONFORM TO EPC ECM SECTION 3.32 - CULVERTS.
- ADDITIONAL STRUCTURES INCLUDING EROSION CONTROL MAY BE REQUIRED AT THE TIME OF CONSTRUCTION.
- ASPHALT THICKNESS AND BASE COURSE THICKNESS COMPACTED FOR ROADS SHALL BE PER DESIGN REPORT BY OWNERS GEOTECHNICAL ENGINEER. OWNERS GEOTECHNICAL ENGINEER TO BE ON SITE AT 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 DEVELOPMENT SERVICES ENGINEERING DIVISION PRIOR TO CONSTRUCTION.
- TYPE II RIP-RAP WITH 4" OF TYPE II GRANULAR BEDDING AND MIRAFI 180N OR EQUAL MAY BE SUBSTITUTED WHERE TYPE I RIP-RAP WITH MIRAFI FW 700 OR EQUAL IS SPECIFIED.
- ALL MATERIALS AND INSTALLATION PROCEDURES SHALL BE IN COMPLIANCE WITH ANY AND ALL APPLICABLE EL PASO COUNTY STANDARDS AND WITH WOODMAN HILLS METRO DISTRICT CONSULTING ENGINEER APPROVAL.
- ALL POTABLE WATER MAINS SHALL BE AWWA C900-SDR18 PVC WITH PUSH-ON SINGLE GASKET TYPE JOINTS AND SHALL MEET THE REQUIREMENTS OF ANSI / NSF 61.
- ALL WATER MAIN FITTINGS SHALL BE MADE FROM GRAY-IRON OR DUCTILE IRON AND FURNISHED WITH MECHANICAL JOINT ENDS. ALL FITTINGS SHALL HAVE A PRESSURE RATING OF 250 PSI AND SHALL MEET THE REQUIREMENTS OF ANSI / NSF 61.
- ALL WATER LINE BENDS, TEES, BLOW OFFS AND PLUGS AT DEAD-END MAINS SHALL BE PROTECTED FROM THRUST BY USING CONCRETE THRUST BLOCKS AND / OR RODDING AND RESTRAINED PIPE PER THE PAINT BRUSH HILLS METRO DISTRICT CONSULTING ENGINEER APPROVAL.
- MAXIMUM DEFLECTION OF 8" OR 12" PVC WATER MAIN JOINTS IS 4 DEGREES. CORRESPONDING MINIMUM CURVE RADIUS IS 286' ADDITIONAL 11.25' OR 22.5' BENDS MAY BE REQUIRED FOR PROPER ALIGNMENT.
- CONTRACTOR IS RESPONSIBLE FOR PROVIDING DETAIL AS-BUILTS OF ALL WATER MAIN, STORM SEWER AND SANITARY SEWER MAIN INSTALLATIONS, INCLUDING ACCURATE DISTANCES OF MAIN LINES, VALVES, FITTINGS, MANHOLES AND LOCATIONS OF WATER AND SEWER SERVICES.
- SANITARY SEWER PIPE AND FITTINGS: PVC 4" - 8" ASTM D3034, TYPE PSM, SDR 35; PUSH-ON JOINTS AND MOLDED RUBBER GASKETS MAXIMUM HORIZONTAL DEFLECTIONS, AFTER INSTALLATION AND BACK FILLING SHALL NOT EXCEED 3% OF THE PIPE DIAMETER. (MINIMUM CURVE RADIUS IS 100' FOR 8" PVC SANITARY SEWER MAIN)

### STANDARD NOTES FOR EL PASO COUNTY GRADING AND EROSION CONTROL PLANS

- CONSTRUCTION MAY NOT COMMENCE UNTIL A CONSTRUCTION PERMIT IS OBTAINED FROM PLANNING AND COMMUNITY DEVELOPMENT AND A PRECONSTRUCTION CONFERENCE IS HELD WITH PLANNING AND COMMUNITY DEVELOPMENT INSPECTIONS.
- STORMWATER DISCHARGES FROM CONSTRUCTION SITES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR DEGRADATION OF STATE WATERS. ALL WORK AND EARTH DISTURBANCE SHALL BE DONE IN A MANNER THAT MINIMIZES POLLUTION OF ANY ON-SITE OR OFF-SITE WATERS, INCLUDING WETLANDS.
- 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 TO REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.
- A SEPARATE STORMWATER MANAGEMENT PLAN (SWMP) FOR THIS PROJECT SHALL BE COMPLETED AND AN EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP) ISSUED PRIOR TO COMMENCING CONSTRUCTION. DURING CONSTRUCTION THE SWMP IS THE RESPONSIBILITY OF THE DESIGNATED STORMWATER MANAGER. SHALL BE LOCATED ON SITE AT ALL TIMES AND SHALL BE KEPT UP TO DATE WITH WORK PROGRESS AND CHANGES IN THE FIELD.
- ONCE THE ESQCP HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE INITIAL STAGE EROSION AND SEDIMENT CONTROL BMPs AS INDICATED ON THE GEC. A PRECONSTRUCTION MEETING BETWEEN THE CONTRACTOR, ENGINEER, AND EL PASO COUNTY WILL BE HELD PRIOR TO ANY CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE APPLICANT TO COORDINATE THE MEETING TIME AND PLACE WITH COUNTY PCD INSPECTIONS STAFF.
- SOIL EROSION CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, OR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN 21 CALENDAR DAYS AFTER FINAL GRADING, OR ON EARLY EARTH DISTURBANCE, HAS BEEN COMPLETED. DISTURBED AREAS ARE DISTURBED AREAS AND ARE NOT AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 30 DAYS SHALL ALSO BE MULCHED WITHIN 21 DAYS AFTER INTERIM GRADING. AN AREA THAT IS GOING TO REMAIN IN AN INTERIM STATE FOR MORE THAN 60 DAYS SHALL ALSO BE SEEDED. ALL TEMPORARY SOIL EROSION CONTROL MEASURES AND BMPs SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND ESTABLISHED.
- TEMPORARY SOIL EROSION CONTROL FACILITIES SHALL BE REMOVED AND EARTH DISTURBANCE AREAS GRADED AND STABILIZED WITH PERMANENT SOIL EROSION CONTROL MEASURES PURSUANT TO STANDARDS AND SPECIFICATION PRESCRIBED IN THE DCM VOLUME II AND THE ENGINEERING CRITERIA MANUAL (ECM) APPENDIX I.
- ALL PERSONS ENGAGED IN EARTH DISTURBANCE SHALL IMPLEMENT AND MAINTAIN ACCEPTABLE SOIL EROSION AND SEDIMENT CONTROL MEASURES INCLUDING BMPs IN CONFORMANCE WITH THE EROSION CONTROL TECHNICAL STANDARDS OF THE DRAINAGE CRITERIA MANUAL (DCM) VOLUME I AND II IN ACCORDANCE WITH THE STORMWATER MANAGEMENT PLAN (SWMP).
- ALL TEMPORARY EROSION CONTROL FACILITIES INCLUDING BMPs AND ALL PERMANENT FACILITIES INTENDED TO CONTROL EROSION OF ANY EARTH DISTURBANCE OPERATIONS, SHALL BE INSTALLED AS DEFINED IN THE APPROVED PLANS, THE SWMP AND THE DCM VOLUME II AND MAINTAINED THROUGHOUT THE DURATION OF THE EARTH DISTURBANCE OPERATION.
- ANY EARTH DISTURBANCE SHALL BE CONDUCTED IN SUCH A MANNER SO AS TO EFFECTIVELY REDUCE ACCELERATED SOIL EROSION AND RESULTING SEDIMENTATION. ALL DISTURBANCES SHALL BE DESIGNED, CONSTRUCTED, AND COMPLETED SO THAT THE EXPOSED AREA OF ANY DISTURBED LAND SHALL BE LIMITED TO THE SHORTEST PRACTICAL PERIOD OF TIME.
- ANY TEMPORARY OR PERMANENT FACILITY DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF STORMWATER AROUND, THROUGH, OR FROM THE EARTH DISTURBANCE AREA SHALL BE DESIGNED TO LIMIT THE DISCHARGE TO A NON-EROSIVE VELOCITY.
- CONCRETE WASH WATER SHALL BE CONTAINED AND DISPOSED OF IN ACCORDANCE WITH THE SWMP. NO WASH WATER SHALL BE DISCHARGED TO OR ALLOWED TO RUNOFF TO STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES.
- EROSION CONTROL BLANKETING IS TO BE USED ON SLOPES STEEPER THAN 3:1.
- BUILDING, CONSTRUCTION, EXCAVATION, OR OTHER WASTE MATERIALS SHALL NOT BE TEMPORARILY PLACED OR STORED IN THE STREET, ALLEY, OR OTHER PUBLIC WAY, UNLESS IN ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN. BMPs MAY BE REQUIRED BY EL PASO COUNTY ENGINEERING IF DEEMED NECESSARY, BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES.
- VEHICLE TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF-SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFF-SITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL WASTES FROM THE CONSTRUCTION SITE FOR DISPOSAL IN ACCORDANCE WITH LOCAL AND STATE REGULATORY REQUIREMENTS. NO CONSTRUCTION DEBRIS, TREE SLASH, BUILDING MATERIAL WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, OR DISCHARGED AT THE SITE.
- THE OWNER, SITE DEVELOPER, CONTRACTOR, AND/OR THEIR AUTHORIZED AGENTS SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION DEBRIS, DIRT, TRASH, ROCK, SEDIMENT, AND SAND THAT MAY ACCUMULATE IN THE STORM SEWER OR OTHER DRAINAGE CONVEYANCE SYSTEM AND STORMWATER APURTURANCES AS A RESULT OF SITE DEVELOPMENT.
- THE QUANTITY OF MATERIALS STORED ON THE PROJECT SITE SHALL BE LIMITED, AS MUCH AS PRACTICAL, TO THAT QUANTITY REQUIRED TO PERFORM THE WORK IN AN ORDERLY SEQUENCE. ALL MATERIALS STORED ON-SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER, IN THEIR ORIGINAL CONTAINERS, WITH ORIGINAL MANUFACTURER'S LABELS.
- NO CHEMICALS ARE TO BE USED BY THE CONTRACTOR, WHICH HAVE THE POTENTIAL TO BE RELEASED IN STORMWATER UNLESS PERMISSION FOR THE USE OF A SPECIFIC CHEMICAL IS GRANTED IN WRITING BY THE ECM ADMINISTRATOR. IN GRANTING THE USE OF SUCH CHEMICALS, SPECIAL CONDITIONS AND MONITORING MAY BE REQUIRED.
- BULK STORAGE STRUCTURES FOR PETROLEUM PRODUCTS AND OTHER CHEMICALS SHALL HAVE ADEQUATE PROTECTION SO AS TO CONTAIN ALL SPILLS AND PREVENT ANY SPILLED MATERIAL FROM ENTERING STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES.
- NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE FLOW LINE OF THE CURB AND GUTTER OR IN THE DITCHLINE.
- INDIVIDUALS SHALL COMPLY WITH THE "COLORADO WATER QUALITY CONTROL ACT" (TITLE 25, ARTICLE 6, CRS) AND THE "CLEAN WATER ACT" (33 USC 1344), IN ADDITION TO THE REQUIREMENTS INCLUDED IN THE DCM VOLUME II AND THE ECM APPENDIX I. ALL APPROPRIATE PERMITS MUST BE OBTAINED BY THE CONTRACTOR PRIOR TO CONSTRUCTION (NPDES, FLOODPLAIN, 404, FUGITIVE DUST, ETC.). IN THE EVENT OF CONFLICTS BETWEEN THESE REQUIREMENTS AND LAWS, RULES, OR REGULATIONS OF OTHER FEDERAL, STATE, OR COUNTY AGENCIES, THE MORE RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.
- ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE AT APPROVED CONSTRUCTION ACCESS POINTS.
- PRIOR TO ACTUAL CONSTRUCTION THE PERMITEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.
- A WATER SOURCE SHALL BE AVAILABLE ON SITE DURING EARTHWORK OPERATIONS AND UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.
- THE SOILS REPORT FOR THIS SITE HAS BEEN PREPARED BY \_\_\_\_\_ AND SHALL BE CONSIDERED A PART OF THESE PLANS.
- AT LEAST TEN DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB 1 ACRE OR MORE, THE OWNER OR OPERATOR OF CONSTRUCTION ACTIVITY SHALL SUBMIT A PERMIT APPLICATION FOR STORMWATER DISCHARGE TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, WATER QUALITY DIVISION. THE APPLICATION CONTAINS CERTIFICATION OF COMPLETION OF A STORMWATER MANAGEMENT PLAN (SWMP), OF WHICH THIS GRADING AND EROSION CONTROL PLAN MAY BE A PART. FOR INFORMATION OR APPLICATION MATERIALS CONTACT:

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

Use updated notes.



VICINITY MAP  
NTS

include the Pond WU  
construction in the Cd's and  
in the FAE.

Cursory redlines Steve  
Kuehster 9/25/2019

### 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 "4" LETTERING, UPPER-LOWER CASE ON 12" BLANK, WITH A WHITE BORDER THAT IS NOT RECESSED. MULTILANE ROADWAYS WITH SPEED LIMITS OF 40MPH OR HIGHER SHALL HAVE "P" 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 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 SLURBASE DESIGN.
- ALL SIGNS SHALL BE SINGLE SHEET ALUMINUM WITH 0.102" 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 24 IN WIDTH. CROSSWALK 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) 520-4819 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.

### 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
  - DOT 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 DEVELOPERS' RESPONSIBILITY TO RECTIFY.
- IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ACCURATELY SHOW EXISTING CONDITIONS, BOTH ON-SITE AND OFF-SITE, 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 PLANNING AND COMMUNITY DEVELOPMENT (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 EGM 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 DOT AND MUTCD CRITERIA. (IF APPLICABLE, ADDITIONAL SIGNING AND STRIPING NOTES WILL BE PROVIDED.)
- 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 OFF-SITE DISTURBANCE, GRADING, OR CONSTRUCTION.

Sheet List Table		
Sheet Number	Sheet Description	Sheet Title
1	COVER SHEET	COVER SHEET
2	P1.00	OVERALL SITE PLAN
3	P2.00	GRADING & EROSION CONTROL PLAN
4	P2.01	GRADING & EROSION CONTROL PLAN
5	P2.02	GRADING & EROSION CONTROL PLAN
6	P2.03	GRADING & EROSION CONTROL PLAN
7	P2.04	GRADING & EROSION CONTROL PLAN
8	P3.00	AVENA ROAD STREET IMPROVEMENT PLAN
9	P3.01	ROSSETT DRIVE STREET IMPROVEMENT PLAN
10	P3.02	BENT GRASS MEADOWS DRIVE STREET IMPROVEMENT PLAN
11	P3.03	BENT GRASS MEADOWS DRIVE STREET IMPROVEMENT PLAN
12	P3.04	BENT GRASS MEADOWS DRIVE STREET IMPROVEMENT PLAN
13	P3.05	BERWYN COURT STREET IMPROVEMENT PLAN
14	P3.06	NIEBRARA DRIVE & ANGLEY COURT STREET IMPROVEMENT PLAN
15	P3.07	BERWYN DRIVE STREET IMPROVEMENT PLAN
16	P3.08	BERWYN DRIVE STREET IMPROVEMENT PLAN
17	P3.09	FEATHER REED DRIVE STREET IMPROVEMENT PLAN
18	P3.10	FEATHER REED DRIVE & CORDGRASS ROAD STREET IMPROVEMENT PLAN
19	P3.11	VILLMORE DRIVE STREET IMPROVEMENT PLAN
20	P3.12	THEOFORD COURT & SILKY THREAD ROAD STREET IMPROVEMENT PLAN
21	P4.00	GRADING PLAN
22	P4.01	GRADING PLAN
23	P4.02	GRADING PLAN
24	P4.03	GRADING PLAN
25	P5.00	CROSS PAN & CURB RETURN PROFILES
26	P5.01	CROSS PAN & CURB RETURN PROFILES
27	P5.02	CROSS PAN & CURB RETURN PROFILES
28	P5.03	CROSS PAN & CURB RETURN PROFILES
29	P5.04	CROSS PAN & CURB RETURN PROFILES
30	P5.05	CROSS PAN & CURB RETURN PROFILES
31	P5.06	CROSS PAN & CURB RETURN PROFILES
32	P6.00	BENT GRASS MEADOWS DRIVE STORM PLAN & PROFILE
33	P6.01	BENT GRASS MEADOWS DRIVE STORM PLAN & PROFILE
34	P6.02	BERWYN DRIVE STORM PLAN & PROFILE
35	P6.03	BOX CULVERT PLAN & PROFILE
36	P6.04	CULVERT & WINGWALL PLAN & PROFILE
37	P6.05	CULVERT & WINGWALL PLAN & PROFILE
38	P6.06	BOX CULVERT DETAILS
39	P6.07	POND MODIFICATION PLAN
40	P7.00	DETAILS
41	P7.01	SITE DETAILS
42	P7.02	SITE DETAILS
43	P7.03	SITE DETAILS

### 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 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.

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

I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARING THIS PLAN.

RONALD G. DENNIS, COLORADO P.E. NO. 0051622 DATE

### OWNER / DEVELOPER'S STATEMENT

I, THE OWNER/DEVELOPER HAVE READ AND WILL COMPLY WITH THE REQUIREMENTS OF THE DRAINAGE REPORT AND PLAN AND THIS SET OF CONSTRUCTION DOCUMENTS. THE OWNER WILL COMPLY WITH THE REQUIREMENTS OF THE GRADING AND EROSION CONTROL PLAN.

NAME, TITLE, BUSINESS NAME, ADDRESS DATE

### 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 EGM 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.

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

### WOODMAN HILLS METROPOLITAN DISTRICT

THESE CONSTRUCTION DOCUMENTS HAVE BEEN REVIEWED AND APPROVED FOR SANITARY SEWER, WATER MAIN AND ASSOCIATED UTILITY SERVICE CONSTRUCTION.

FOR AND BEHALF OF FALCON FIRE PROTECTION DISTRICT DATE

### FALCON FIRE PROTECTION DISTRICT

ALL FIRE HYDRANTS SHALL BE INSTALLED ACCORDING TO THE FALCON FIRE PROTECTION DISTRICT SPECIFICATIONS. THE NUMBER OF FIRE HYDRANTS AND HYDRANT LOCATIONS AS SHOWN ON THIS WATER INSTALLATION PLAN ARE CORRECT AND ADEQUATE TO SATISFY THE FIRE PROTECTION REQUIREMENTS AS SPECIFIED BY THE FALCON FIRE PROTECTION DISTRICT.

FOR AND BEHALF OF FALCON FIRE PROTECTION DISTRICT DATE

### CAUTION - NOTICE TO CONTRACTOR

- ALL UTILITY LOCATIONS SHOWN ARE BASED ON MAPS PROVIDED BY THE APPROPRIATE UTILITY COMPANY AND FIELD SURFACE EVIDENCE AT THE TIME OF SURVEY AND IS TO BE CONSIDERED AN APPROXIMATE LOCATION ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE FIELD LOCATION OF ALL UTILITIES, PUBLIC OR PRIVATE, WHETHER SHOWN ON THE PLANS OR NOT, PRIOR TO CONSTRUCTION. REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO CONSTRUCTION.
- WHERE A PROPOSED UTILITY CROSSES AN EXISTING UTILITY, IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF SUCH EXISTING UTILITY, EITHER THROUGH POT-HOLING OR ALTERNATIVE METHOD. REPORT INFORMATION TO THE ENGINEER PRIOR TO CONSTRUCTION.



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**Galloway**

1755 Telstar Drive, Suite 107  
Colorado Springs, CO 80920  
719.900.7220  
gallowayus.com

### LIST OF CONTACTS

#### APPLICANT/DEVELOPER

CHALLENGER HOMES, INC.  
13570 NORTHGATE ESTATES DR  
COLORADO SPRINGS, CO 80921  
TEL: (719) 598-5190  
CONTACT: JIM BYERS  
EMAIL: JIMBY@CHALLENGERHOMES.COM

#### ENGINEER

GALLOWAY & COMPANY, INC.

1755 TELSTAR DRIVE, SUITE 107  
COLORADO SPRINGS, COLORADO 80920  
TEL: (719) 900-7220  
CONTACT: GRANT DENNIS, P.E.  
EMAIL: GRANTDENNIS@GALLOWAYUS.COM

#### COUNTY ENGINEER

EL PASO COUNTY DEPT. OF TRANSPORTATION  
2880 INTERNATIONAL CIRCLE  
COLORADO SPRINGS, COLORADO 80910  
TEL: (719) 520-4802  
CONTACT: JENNIFER IRVINE, P.E.  
EMAIL: JIRVINE@ELPASOCOUNTY.CO.GOV

#### SURVEYOR

GALLOWAY & COMPANY, INC.

1755 TELSTAR DRIVE, SUITE 107  
COLORADO SPRINGS, COLORADO 80920  
TEL: (719) 900-7220  
CONTACT: LYLE BESSEGGER  
EMAIL: LYLEBESSEGGER@GALLOWAYUS.COM

#### UTILITY REVIEW - WATER/WASTEWATER

WOODMEN HILLS METRO DISTRICT

11720 WOODMEN HILLS DRIVE  
FALCON, COLORADO 80831  
TEL: (719) 495-2500  
CONTACT: JIM BYERS

#### UTILITY REVIEW - GAS

CITY OF COLORADO SPRINGS

101 SOUTH CONEJOS STREET  
COLORADO SPRINGS, COLORADO 80903  
TEL: (719) 486-3574  
CONTACT: JIM BYERS

#### FIRE DISTRICT:

FALCON FIRE PROTECTION DISTRICT

7030 N. MERIDIAN RD.  
FALCON, COLORADO 80831  
TEL: (719) 495-4050  
CONTACT: JIM BYERS

#### ELECTRIC

MOUNTAIN VIEW ELECTRIC

P.O. BOX 140  
LIMON, COLORADO 80828  
TEL: (719) 495-2283  
CONTACT: JIM BYERS

#### TELEPHONE

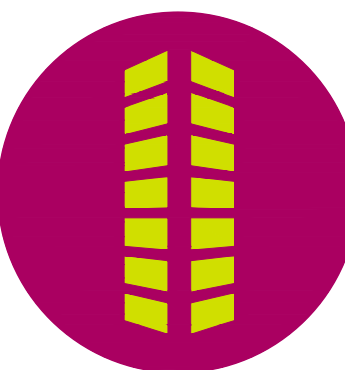
CENTURY LINK

(LOCATORS) 811

AT & T

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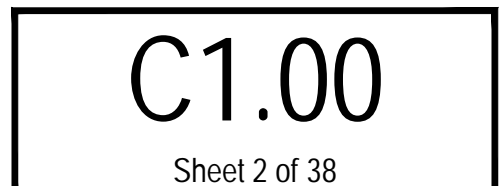
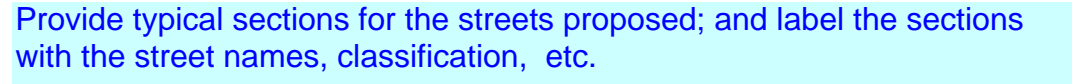


CONSTRUCTION PLANS  
BENT GRASS RESIDENTIAL FILING NO. 2

BENT GRASS MEADOWS DRIVE  
FALCON, CO 80831 EL PASO COUNTY

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Know what's below.  
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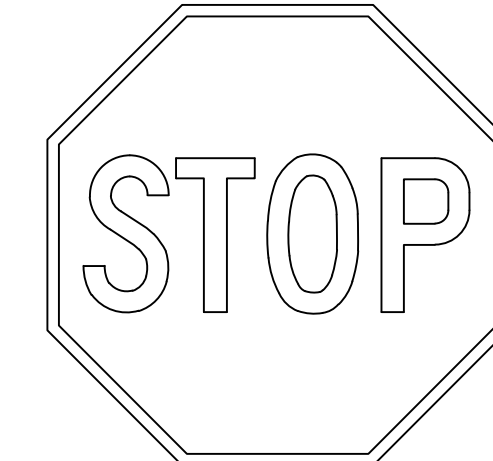


AVENA ROAD (PUBLIC)  
(50' R.O.W.)  
DESIGN SPEED - 25 MPH RESIDENTIAL

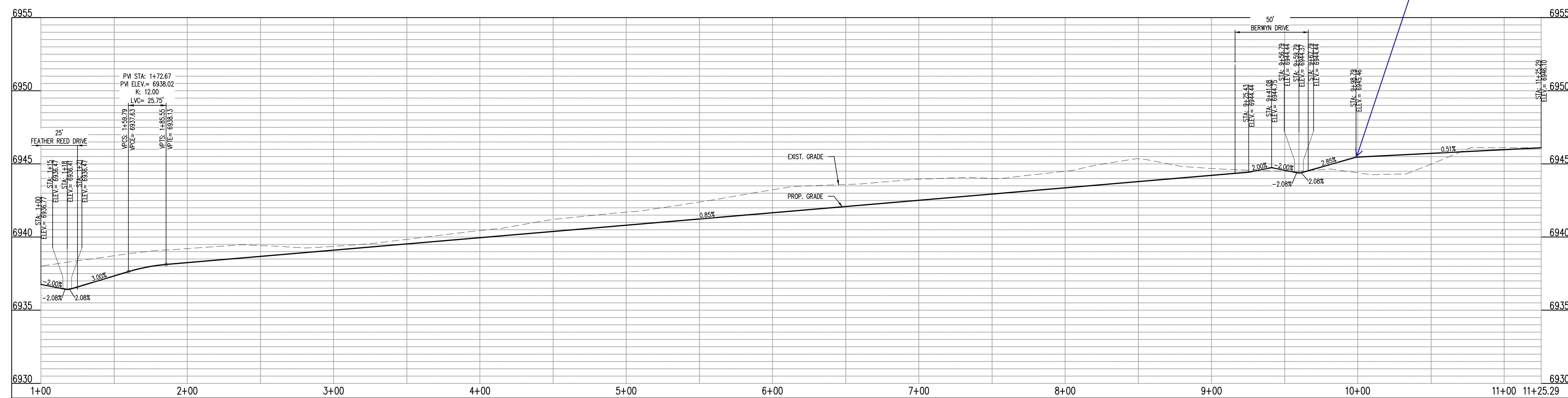
KEY NOTE: A

ROAD NAME

STREET NAME (D-3)



STOP SIGN (R1-1)



AVENA RD - CL - 50' ROW  
 STA: 1+00 - 11+25.29  
 SCALE: H: 1"=40' V: 1"=10'

[illegible]

Project No:	CLH-14.20
Drawn By:	JDP
Checked By:	RGD
Date:	7/29/2019

AVENA ROAD  
STREET IMPROVEMENT PLAN

C3.00

Sheet 3 of 38

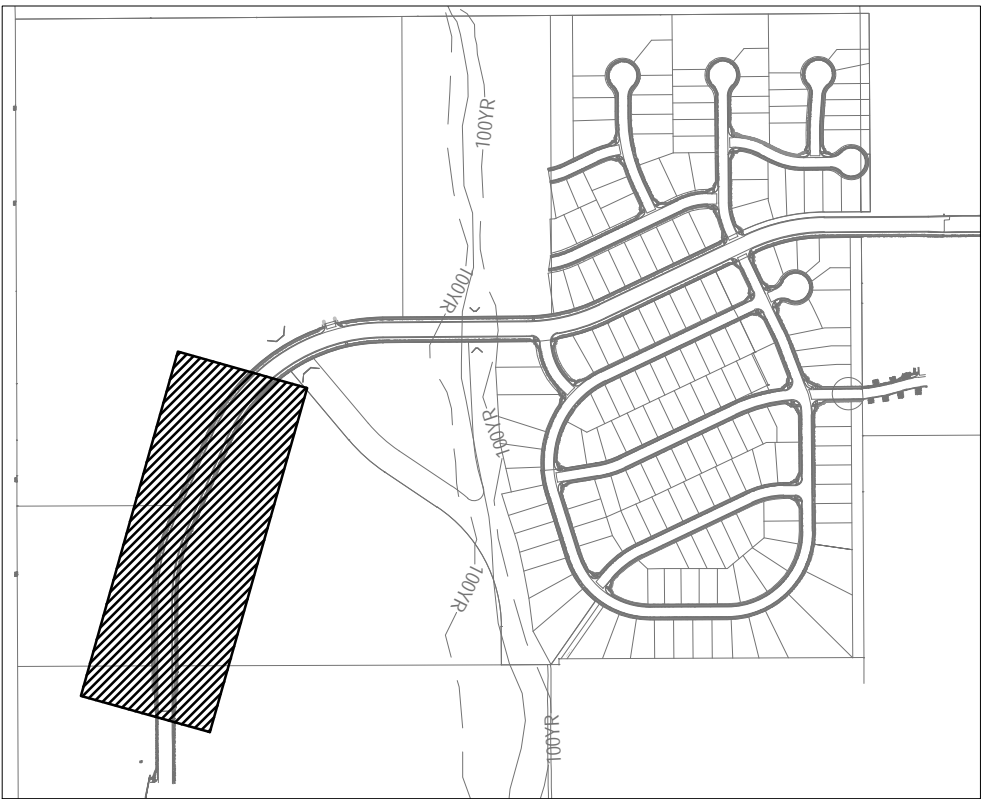






SIGNING AND STRIPING NOTES

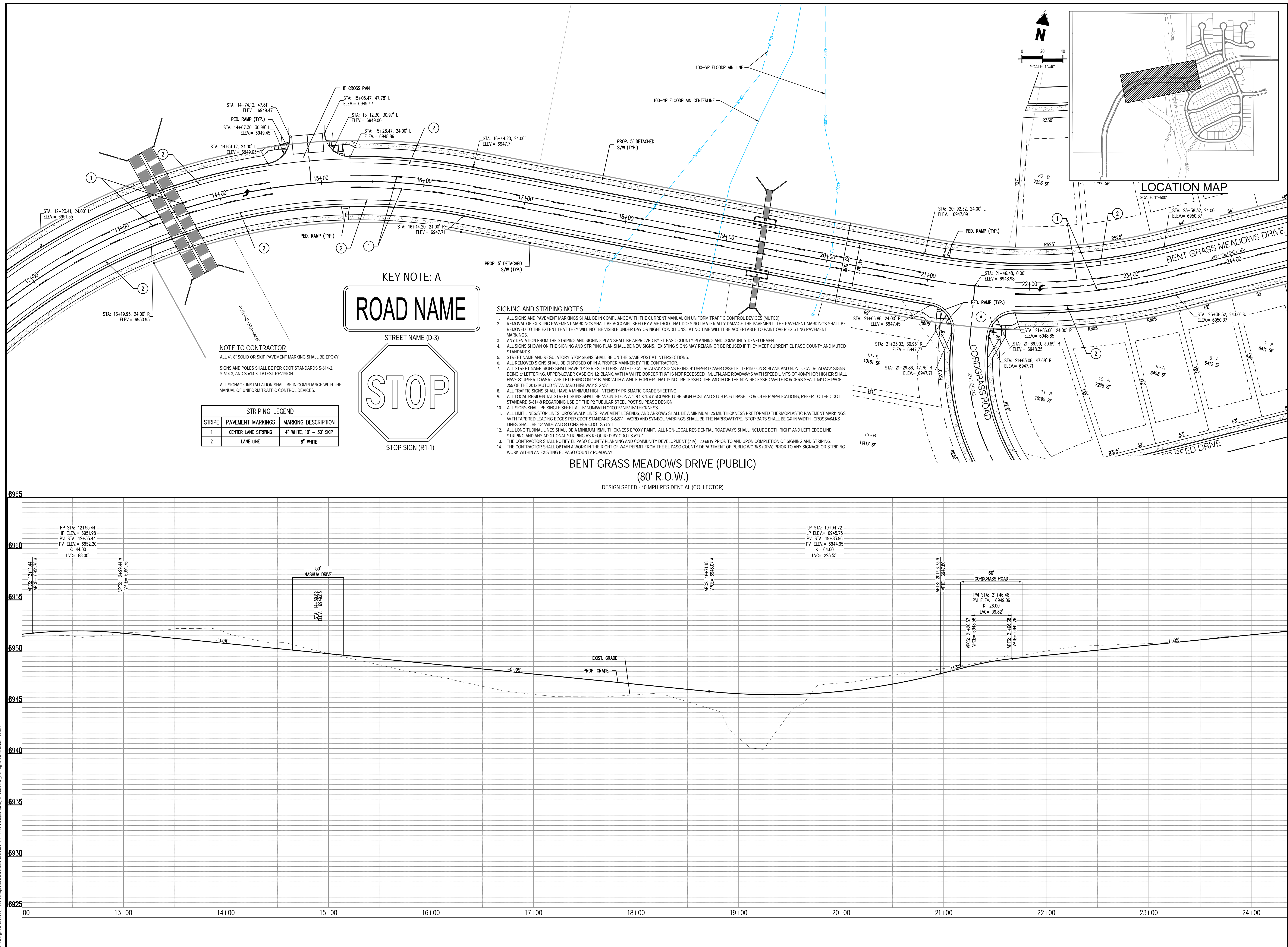
1. ALL SIGNS AND PAVEMENT MARKINGS SHALL BE IN COMPLIANCE WITH THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
2. REMOVAL OF EXISTING PAVEMENT MARKINGS SHALL BE ACCOMPLISHED BY A METHOD THAT DOES NOT MATERIALLY DAMAGE THE PAVEMENT. THE PAVEMENT MARKINGS SHALL BE REMOVED TO THE EXTENT THAT THEY WILL NOT BE VISIBLE UNDER DAY OR NIGHT CONDITIONS. AT NO TIME WILL IT BE ACCEPTABLE TO PAINT OVER EXISTING PAVEMENT MARKINGS.
3. ANY DEVIATION FROM THE STRIPING AND SIGNING PLAN SHALL BE APPROVED BY EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT.
4. 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.
5. STREET NAME AND REGULATORY STOP SIGNS SHALL BE ON THE SAME POST AT INTERSECTIONS.
6. ALL REMOVED SIGNS SHALL BE DISPOSED OF IN A PROPER MANNER BY THE CONTRACTOR.
7. ALL STREET NAME SIGNS SHALL HAVE 12" 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 40MPH 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".
8. ALL TRAFFIC SIGNS SHALL HAVE A MINIMUM HIGH INTENSITY PRISMATIC GRADE SHEETING.
9. 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 SUBBASE DESIGN.
10. ALL SIGNS SHALL BE SINGLE SHEET ALUMINUM WITH 0.010" MINIMUM THICKNESS.
11. 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. CROSSWALK LINES SHALL BE 12" WIDE AND 8' LONG PER CDOT S-627.1.
12. ALL LONGITUDINAL LINES SHALL BE A MINIMUM 15 MIL 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.
13. THE CONTRACTOR SHALL NOTIFY EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT (719) 520-6819 PRIOR TO AND UPON COMPLETION OF SIGNING AND STRIPING.
14. 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.





[illegible]

Project No:	CLH-14.20
Drawn By:	JDP
Checked By:	RGD
Date:	7/29/2019

BENT GRASS MEADOWS DRIVE  
STREET IMPROVEMENT PLAN



2. SIGNS AND PAVEMENT MARKINGS SHALL BE IN COMPLIANCE WITH THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
3. 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.
4. ANY DEVIATION FROM THE STRIPING AND SIGNING PLAN SHALL BE APPROVED BY EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT.
5. 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.
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7. ALL REMOVED SIGNS SHALL BE DISPOSED OF IN A PROPER MANNER BY THE CONTRACTOR.
8. ALL STREET NAME SIGNS SHALL HAVE "D" SERIES LETTERS, WITH LOCAL ROADWAY SIGNS BEING "A" UPPER-LOWER CASE LETTERING ON 8" BLANK AND NON-LOCAL ROADWAY SIGNS BEING "E" 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.
9. ALL TRAFFIC SIGNS SHALL HAVE A MINIMUM HIGH INTENSITY PRISMATIC GRADE SIGNAGE.
10. 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 SUBBASE DESIGN.
11. ALL SIGNS SHALL BE SINGLE SIZE ALUMINUM WITH 10" MINIMUM THICKNESS.
12. ALL LIMIT LINE/STOP SIGNS, CROSSWALK LINES, PAVEMENT LEGENDS, AND ARROWS SHALL BE A MINIMUM 125 MIL THICKNESS PREFORMED THERMOPLASTIC PAVEMENT MARKINGS WITH REFLECTIVE BEADS. NOTED: EL PASO COUNTY DEPARTMENT OF PUBLIC WORKS (DPW) RECOMMENDS WORD AND SYMBOL MARKINGS SHALL BE THE WARRIOWAY. STOP BASES SHALL BE 24" IN WIDTH. CROSSWALK LINES SHALL BE 12" WIDE AND 8 LONG PER CDOT S-627.1.
13. ALL LONGITUDINAL LINES SHALL BE A MINIMUM 151 MIL THICKNESS EPDM MAT. 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.
14. THE CONTRACTOR SHALL NOTIFY EL PASO COUNTY DEPARTMENT OF PUBLIC WORKS (DPW) PRIOR TO AND UPON COMPLETION OF SIGNING AND STRIPING.
15. 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.



KEY NOTE: A

ROAD NAME

STREET NAME (D-3)

STOP

STOP SIGN (R1-1)

KEY NOTE: B



SPEED LIMIT SIGN (R2-1)

ALL 4", 8" SOLID OR SKIP PAVEMENT MARKING SHALL BE EPOXY  
SIGN AND POLES SHALL BE PER CDOT STANDARDS S-614-2,  
S-614-3, AND S-614-8, LATEST REVISION.  
ALL SIGNAGE INSTALLATION SHALL BE IN COMPLIANCE WITH THE  
MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

[illegible]

Project No:	CLH-14.20
Drawn By:	JDP
Checked By:	RGD
Date:	7/29/2019

BENT GRASS MEADOWS DRIVE  
STREET IMPROVEMENT PLAN

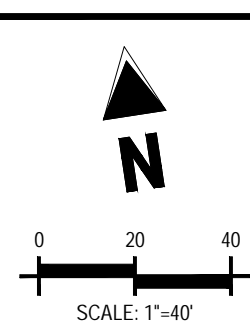
C3.04

Sheet 7 of 38

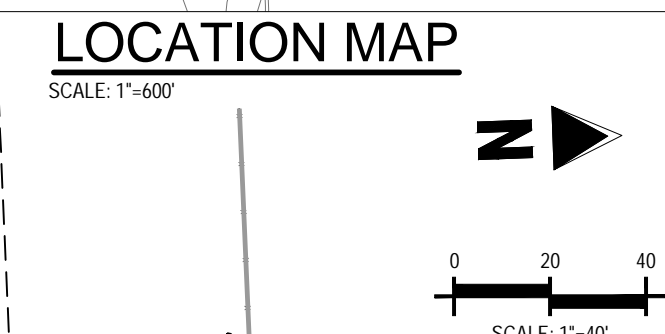




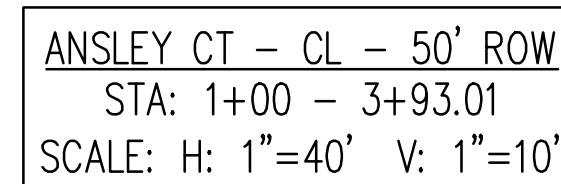
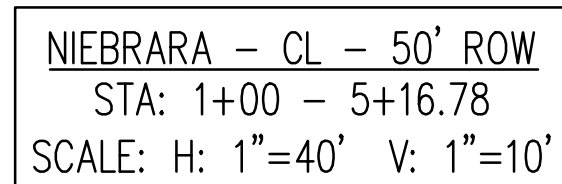
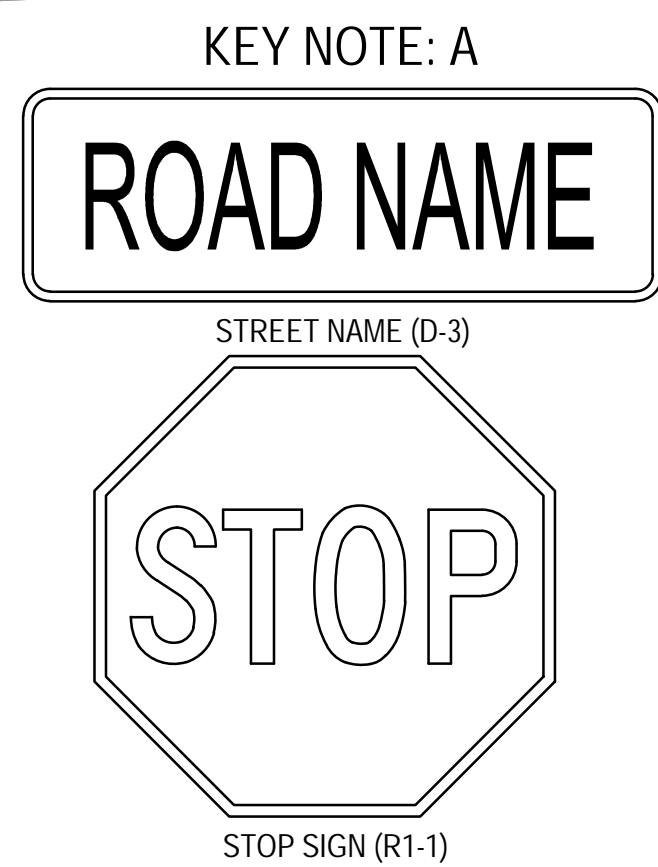




NIEBRARA DRIVE (PUBLIC)  
(50' R.O.W.)  
DESIGN SPEED - 25 MPH RESIDENTIAL



ANSLEY COURT (PUBLIC)  
(54' R.O.W.)  
DESIGN SPEED - 25 MPH RESIDENTIAL










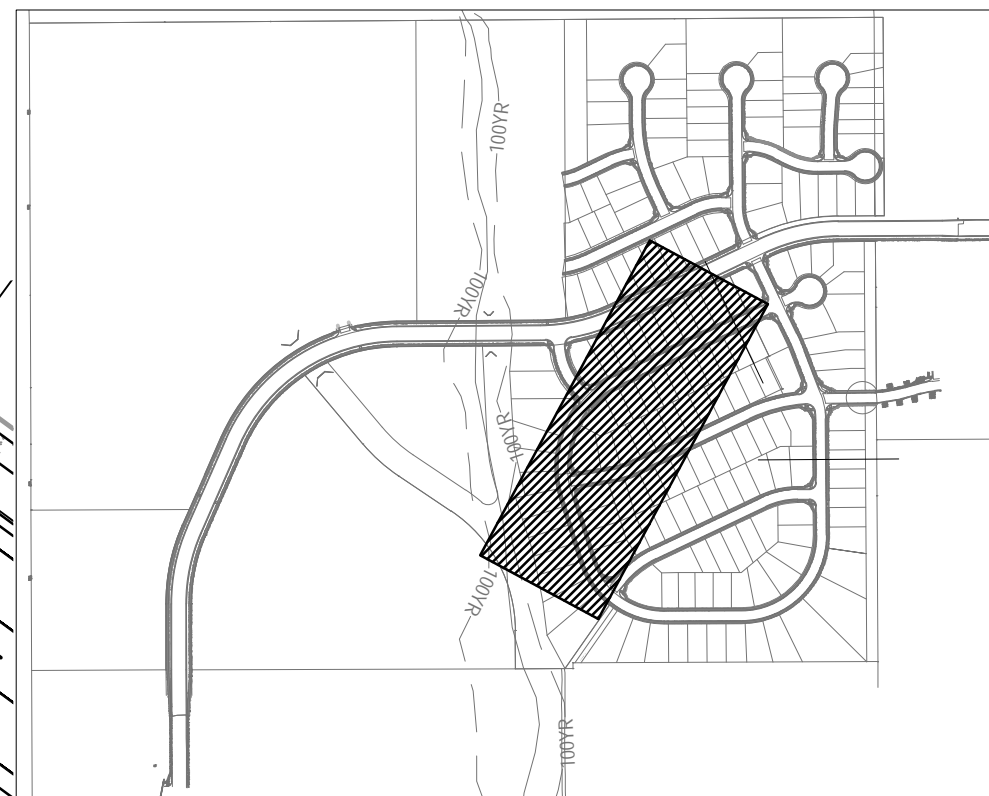




ROAD NAME

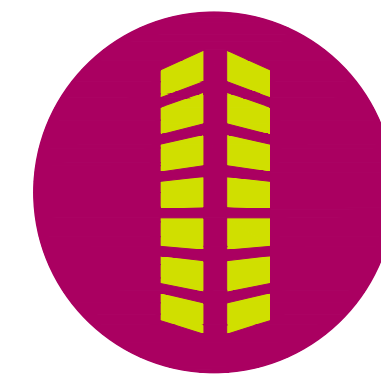
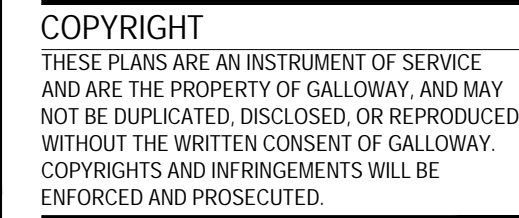


STOP SIGN (R1-1)



SCALE: 1"=600'

DESIGN SPEED - 25 MPH RESIDENTIAL



BENT GRASS MEADOWS DRIVE  
FALCON, CO 80831 EL PASO COUNTY

Project No:	CLH-14.20
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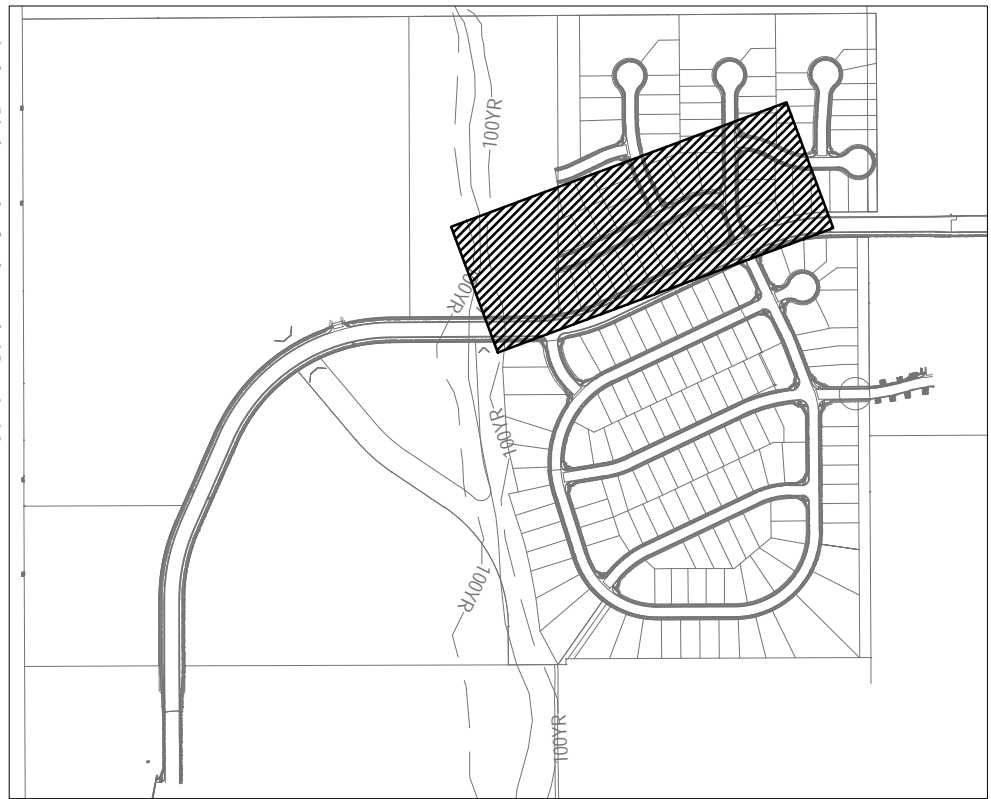
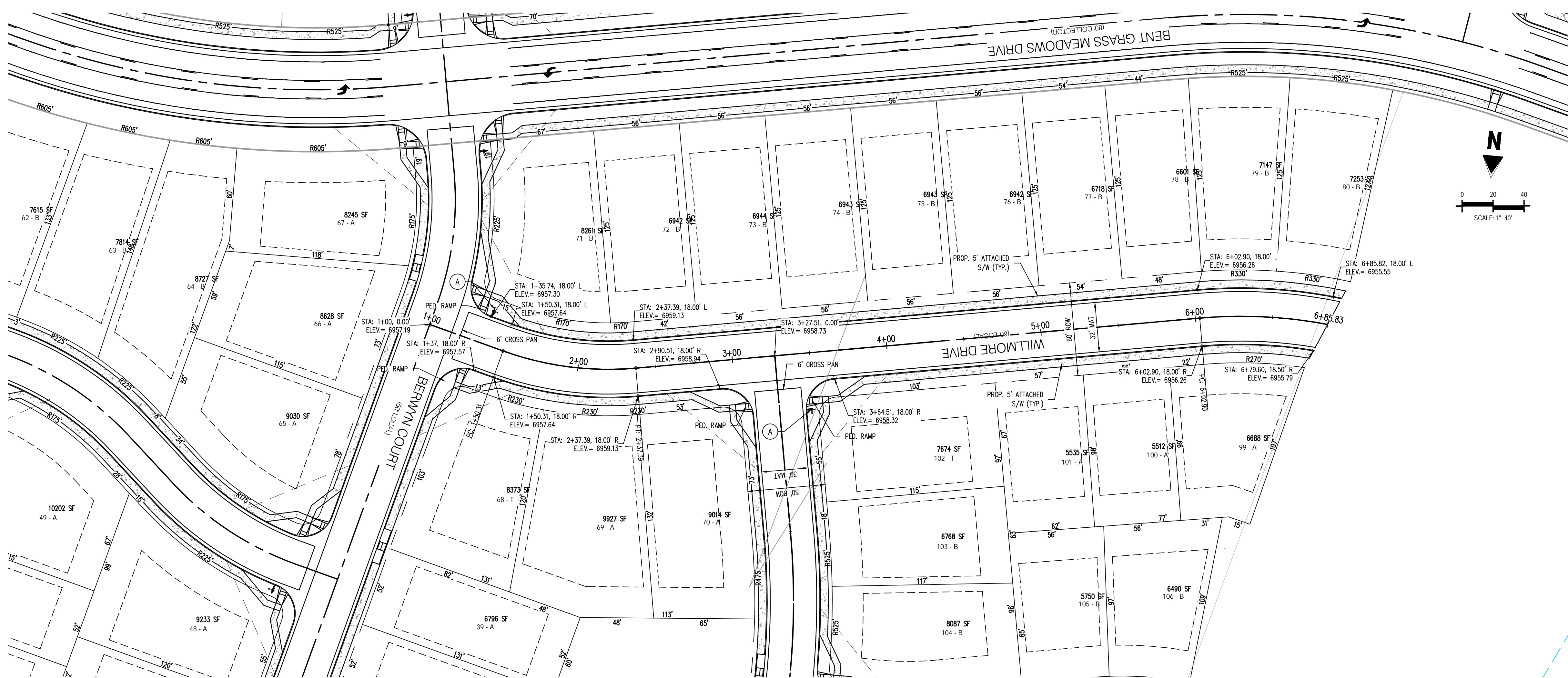
Sheet 12 of 38







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LOCATION MAP

SCALE: 1"=600'

WILMORE DRIVE (PUBLIC)  
(60' R.O.W.)  
DESIGN SPEED - 25 MPH RESIDENTIAL

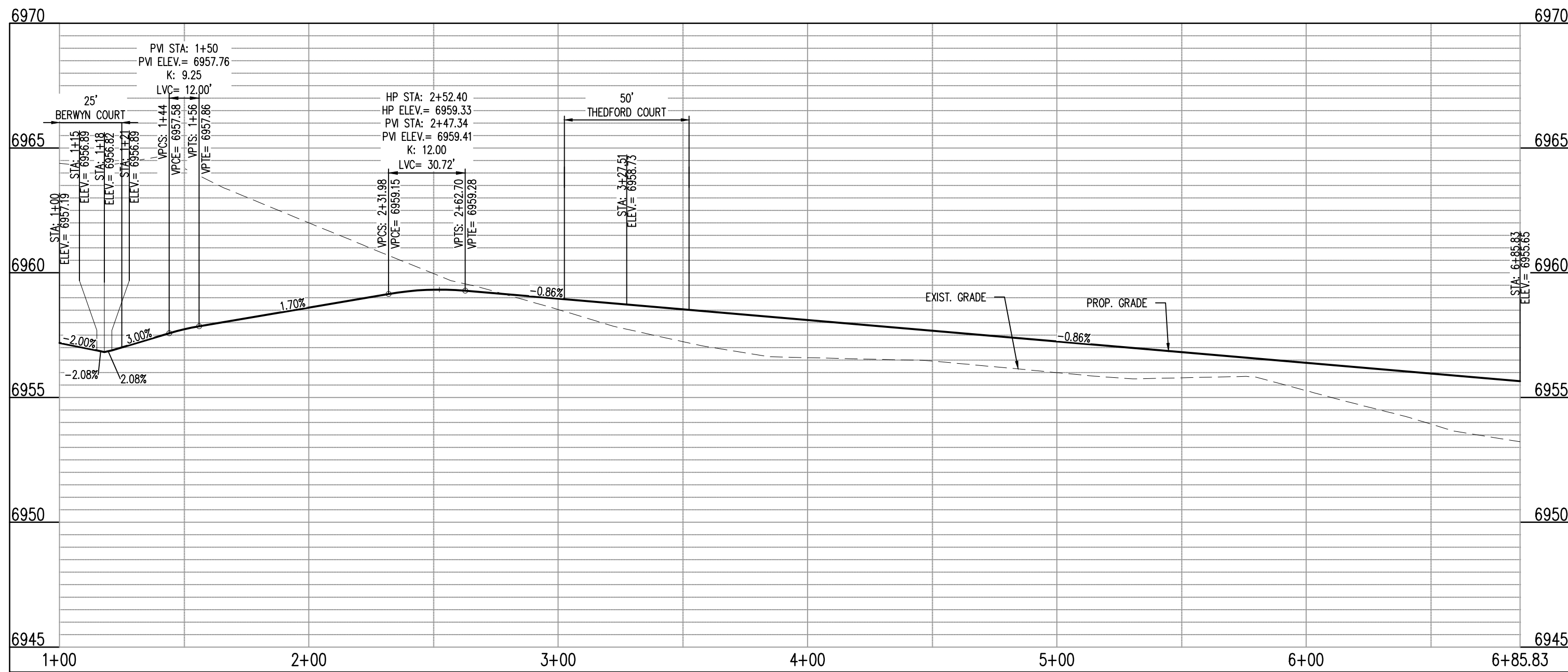
KEY NOTE: A

ROAD NAME

STREET NAME (D-3)

STOP

STOP SIGN (R1-1)



WILMORE DR EAST - CL - 60' ROW  
STA: 1+00 - 6+85.83  
SCALE: H: 1"=40' V: 1"=10'

Galloway

1755 Teletar Drive, Suite 107  
Colorado Springs, CO 80920  
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gallowayus.com

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CONSTRUCTION PLANS  
BENT GRASS RESIDENTIAL FILING NO. 2

BENT GRASS MEADOWS DRIVE  
FALCON, CO 80831 EL PASO COUNTY

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Project No: CLH-14-20  
Drawn By: JDP  
Checked By: RGD  
Date: 7/29/2019

WILMORE DRIVE  
STREET IMPROVEMENT PLAN

C3.11

Sheet 14 of 38





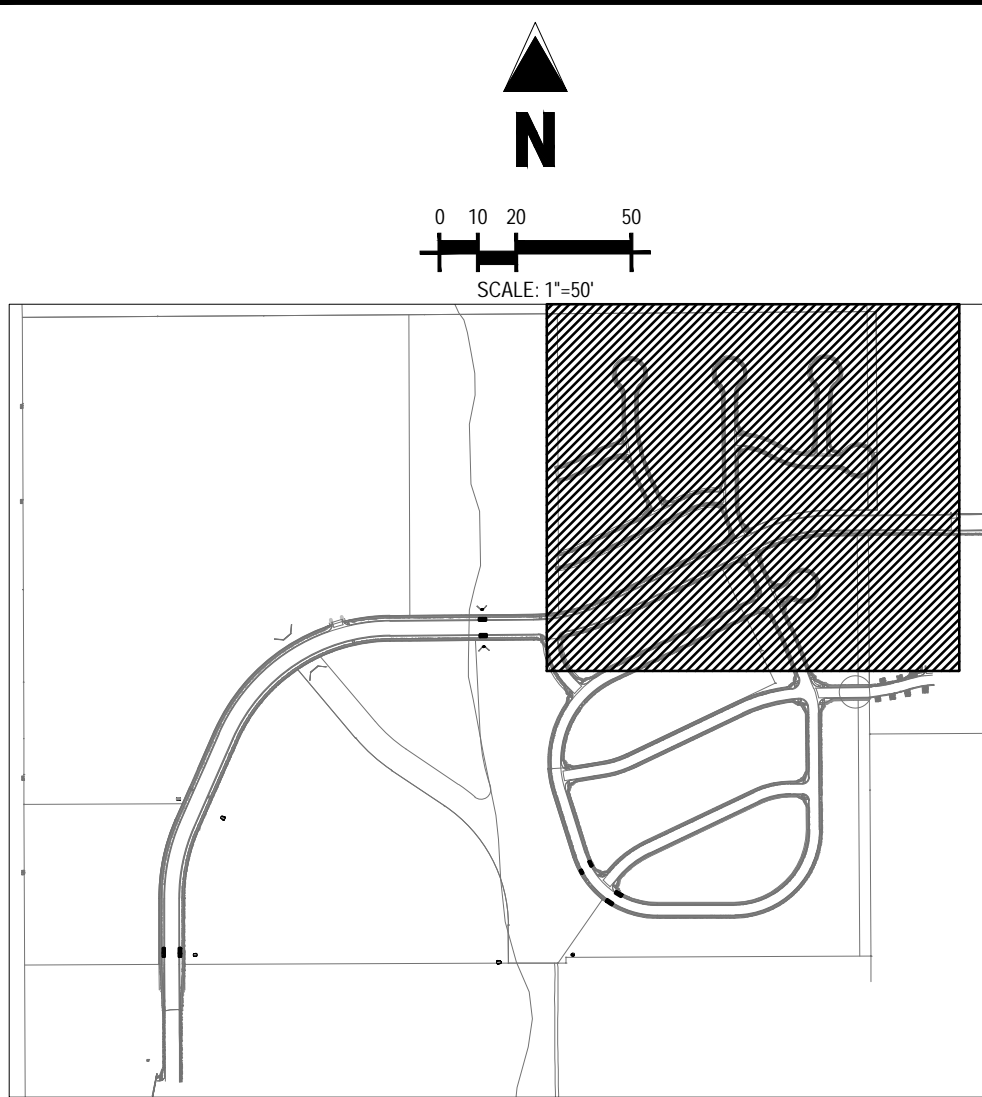
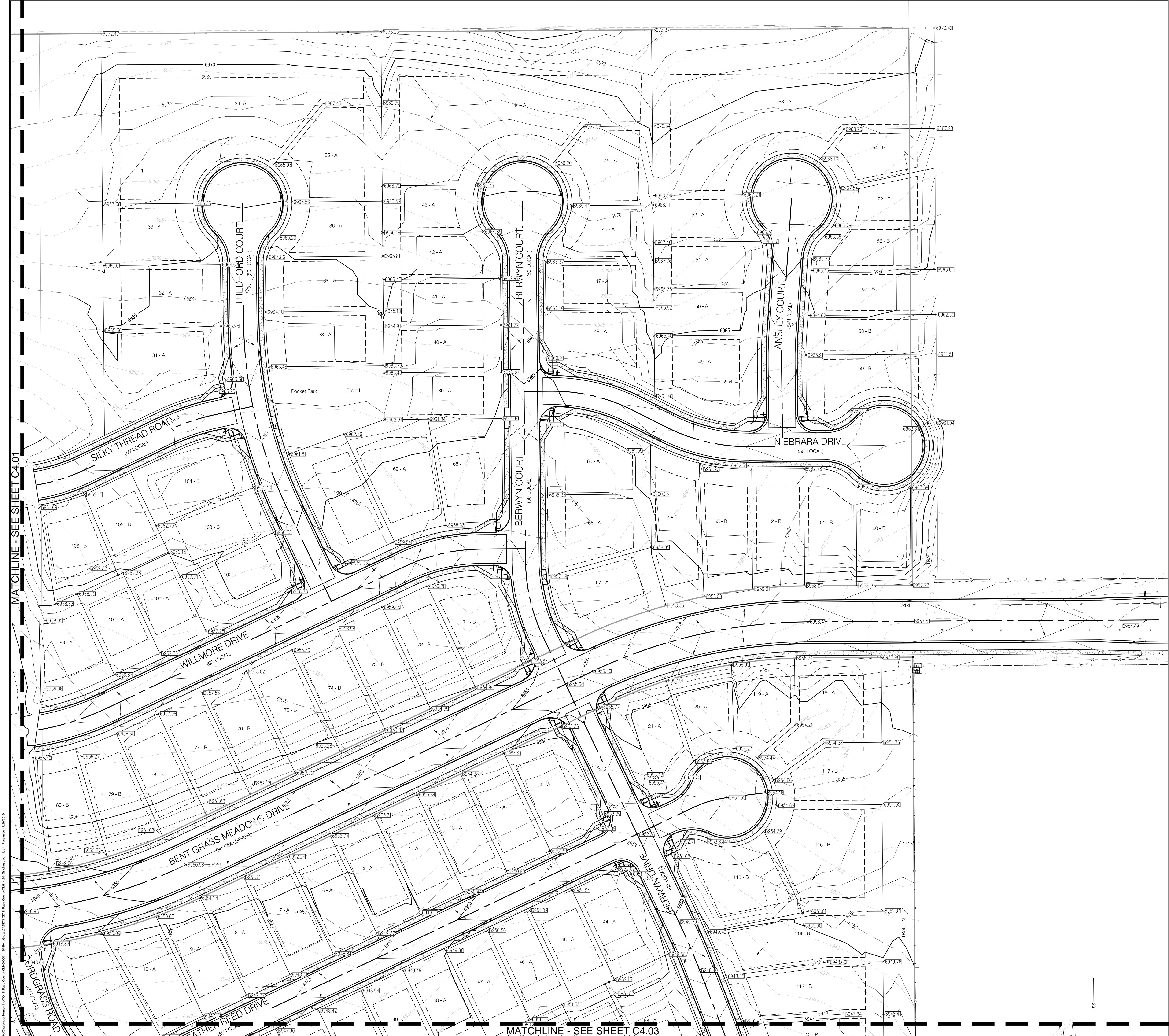












LOCATION MAP	
SCALE: 1"=400'	
GRADING LEGEND	
	EXISTING MINOR CONTOUR
	EXISTING MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	PROPOSED MAJOR CONTOUR
	PROPERTY BOUNDARY
	EXISTING STORM SEWER
	PROPOSED STORM SEWER
	EXISTING FLOW
	PROPOSED FLOW
	PROPOSED SPOT ELEVATION



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Project No:	CLH-14.20
Drawn By:	JDP
Checked By:	RGD
Date:	7/29/2019

GRADING PLAN

**CAUTION - NOTICE TO CONTRACTOR**

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**C4.02**

Sheet 18 of 38





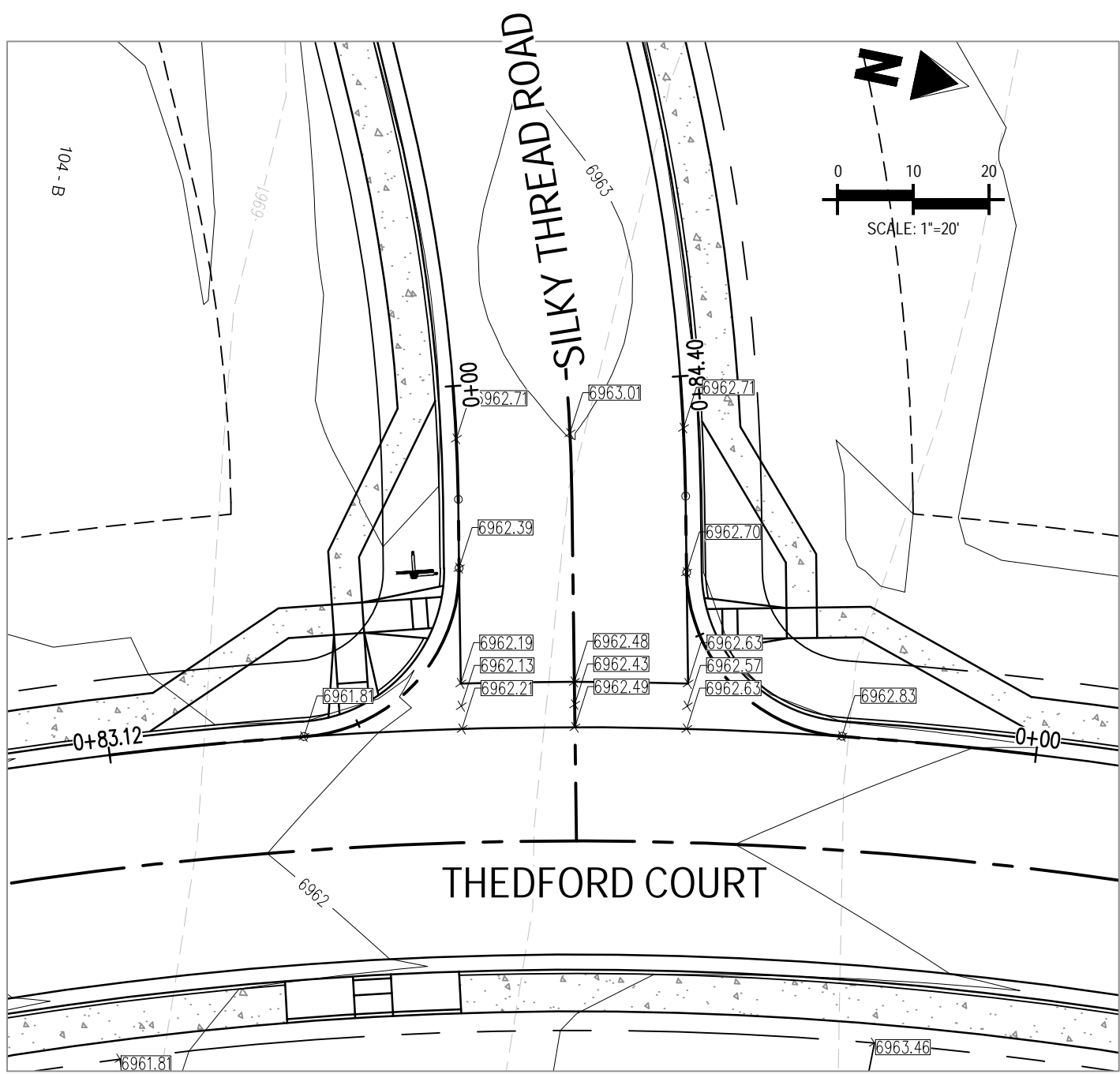




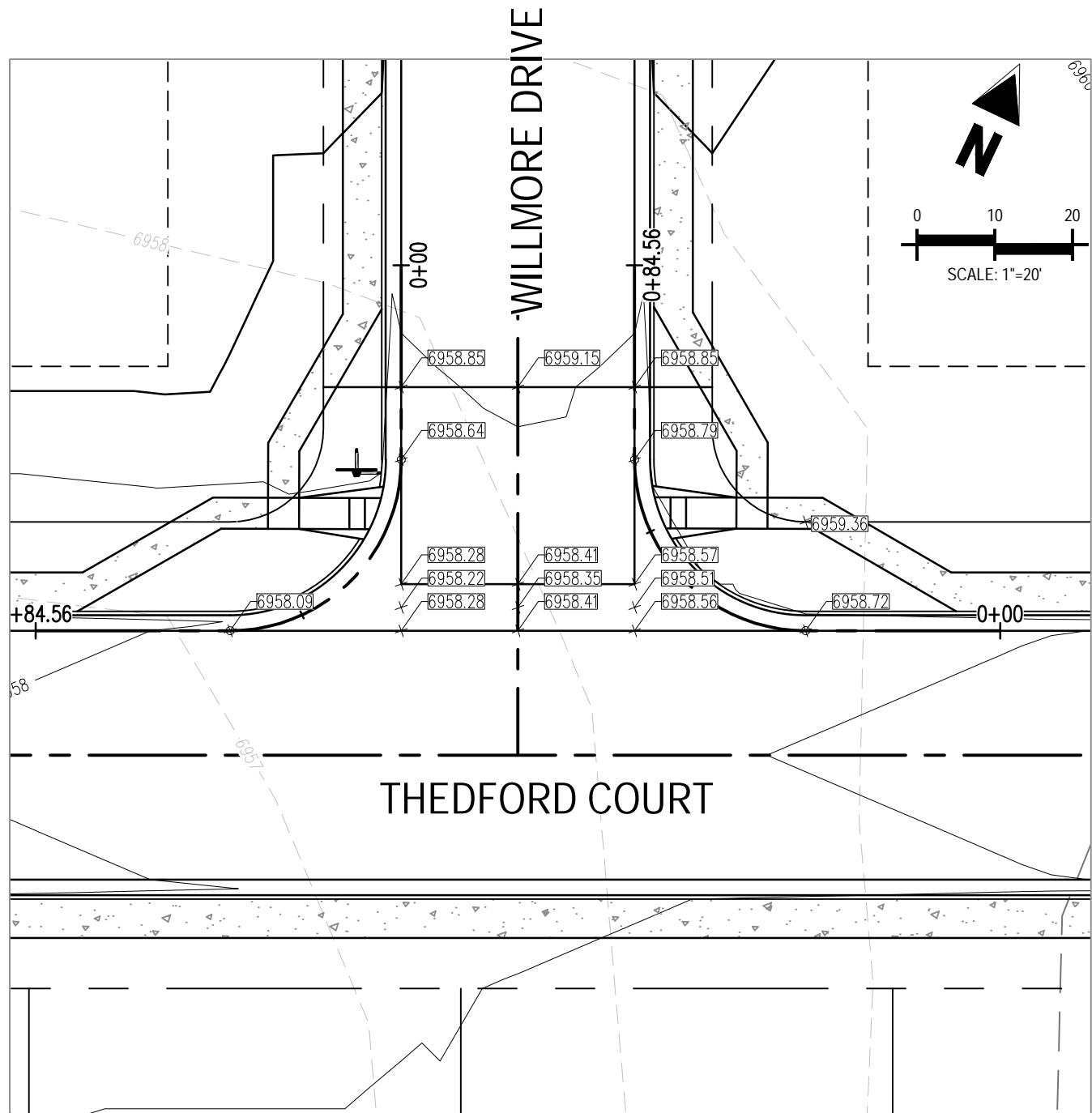
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Date:	7/29/2019

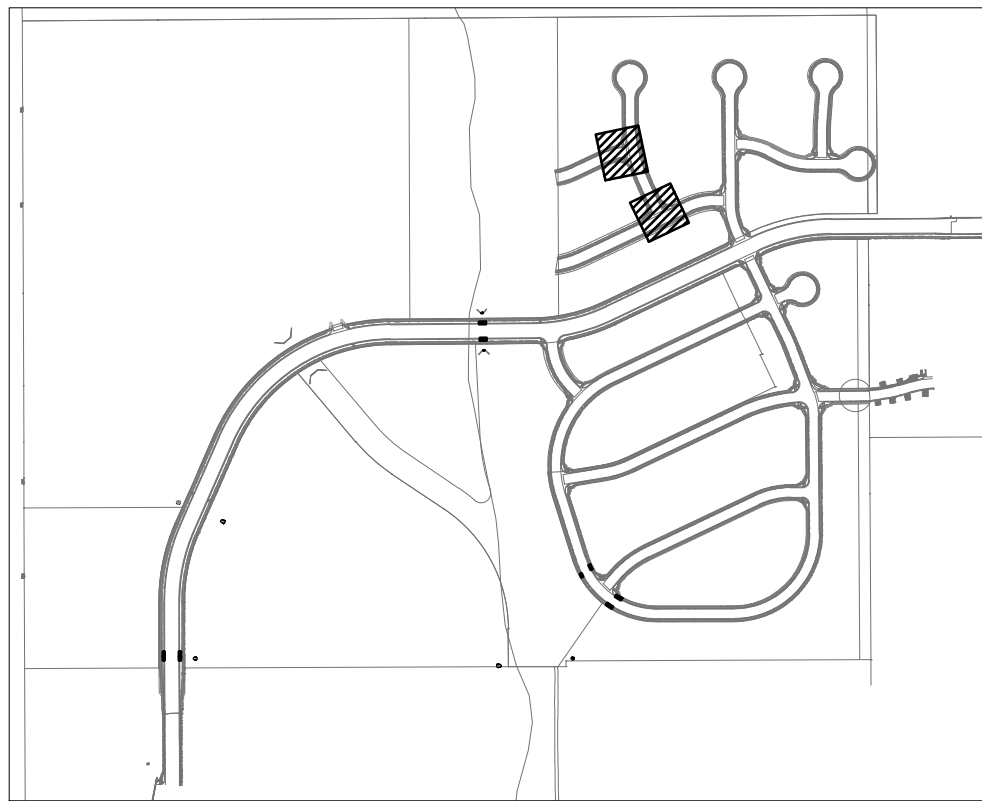
CROSS PAN &  
CURB RETURN PROFILES



INTERSECTION OF:  
THEDFORD COURT & SILKY THREAD ROAD



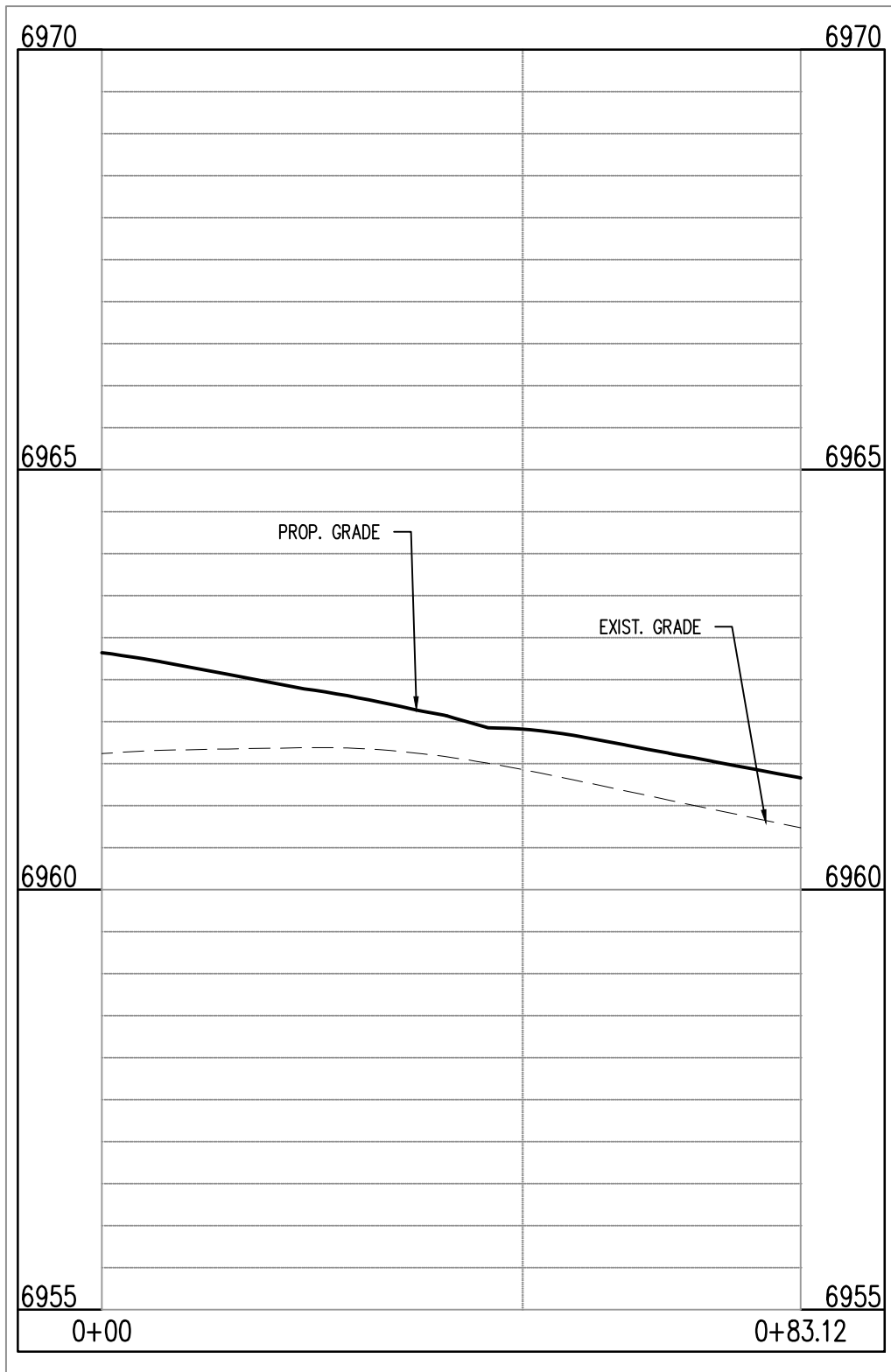
INTERSECTION OF:  
WILLMORE DRIVE & THEDFORD COURT



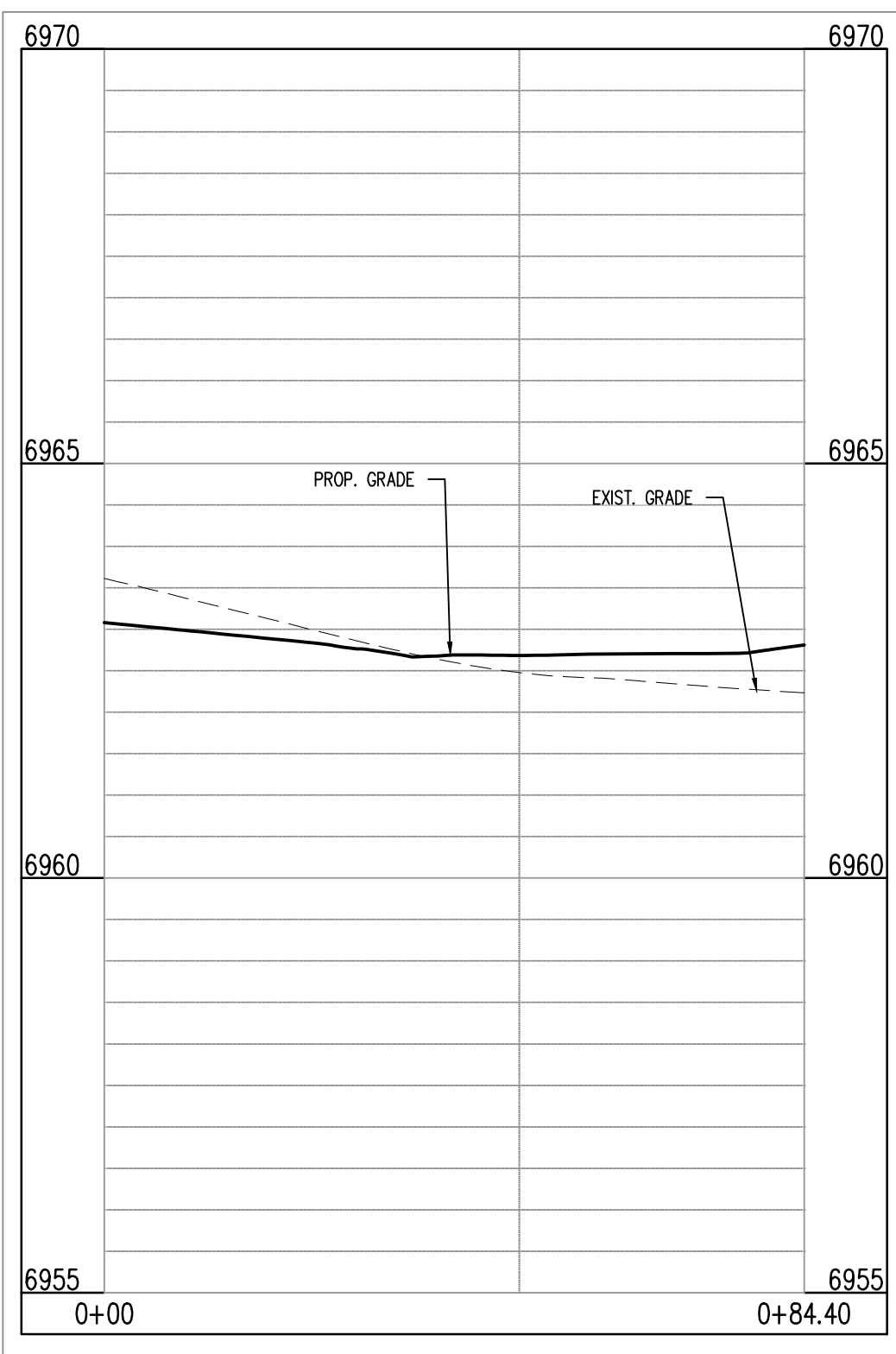
LOCATION MAP

GRADING LEGEND

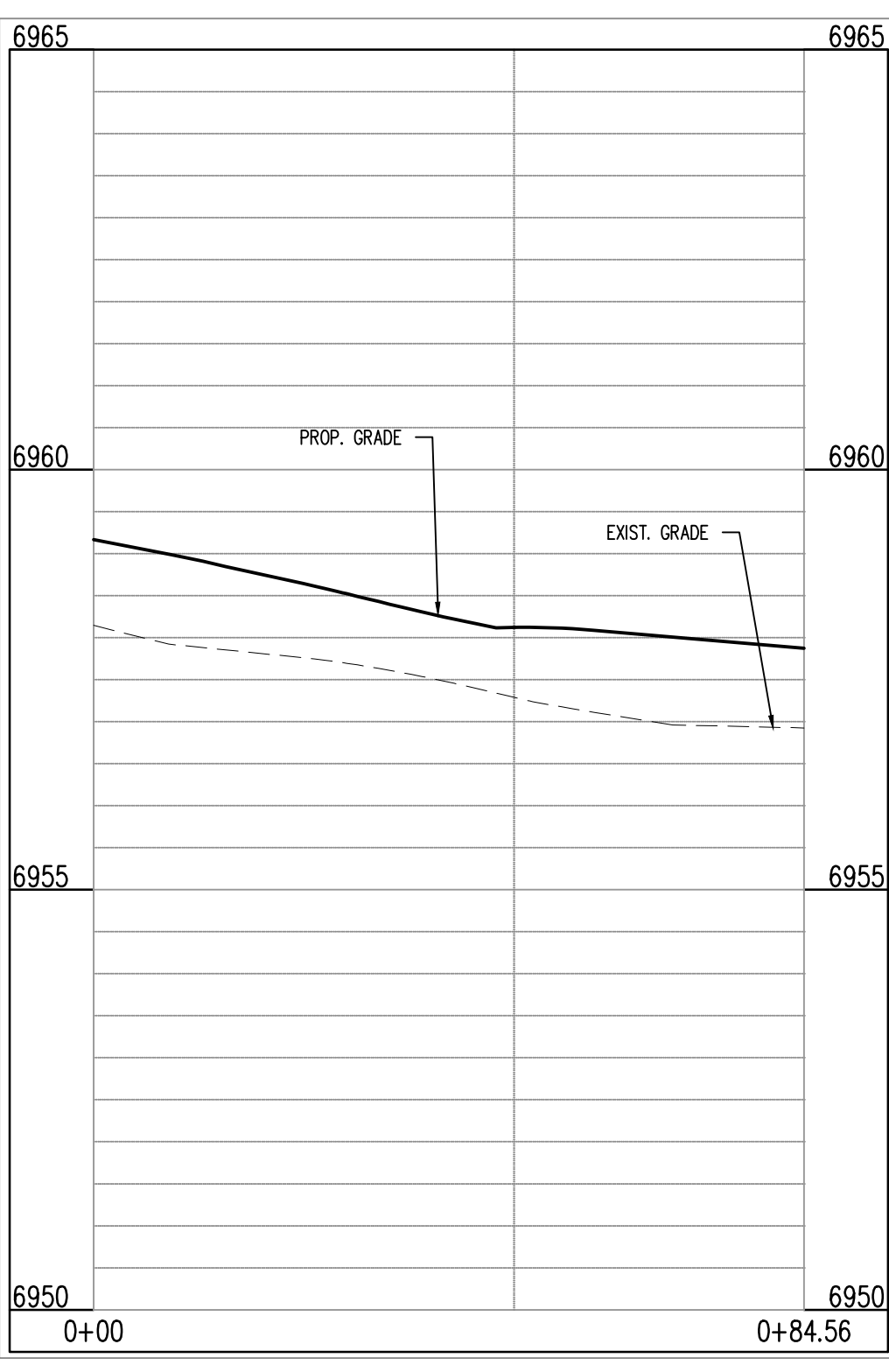
69.31	EXISTING MINOR CONTOUR
69.30	EXISTING MAJOR CONTOUR
69.41	PROPOSED MINOR CONTOUR
69.40	PROPOSED MAJOR CONTOUR
	PROPERTY BOUNDARY
	EXISTING STORM SEWER
	PROPOSED STORM SEWER
	EXISTING FLOW
	PROPOSED FLOW
×69.30.42	PROPOSED SPOT ELEVATION



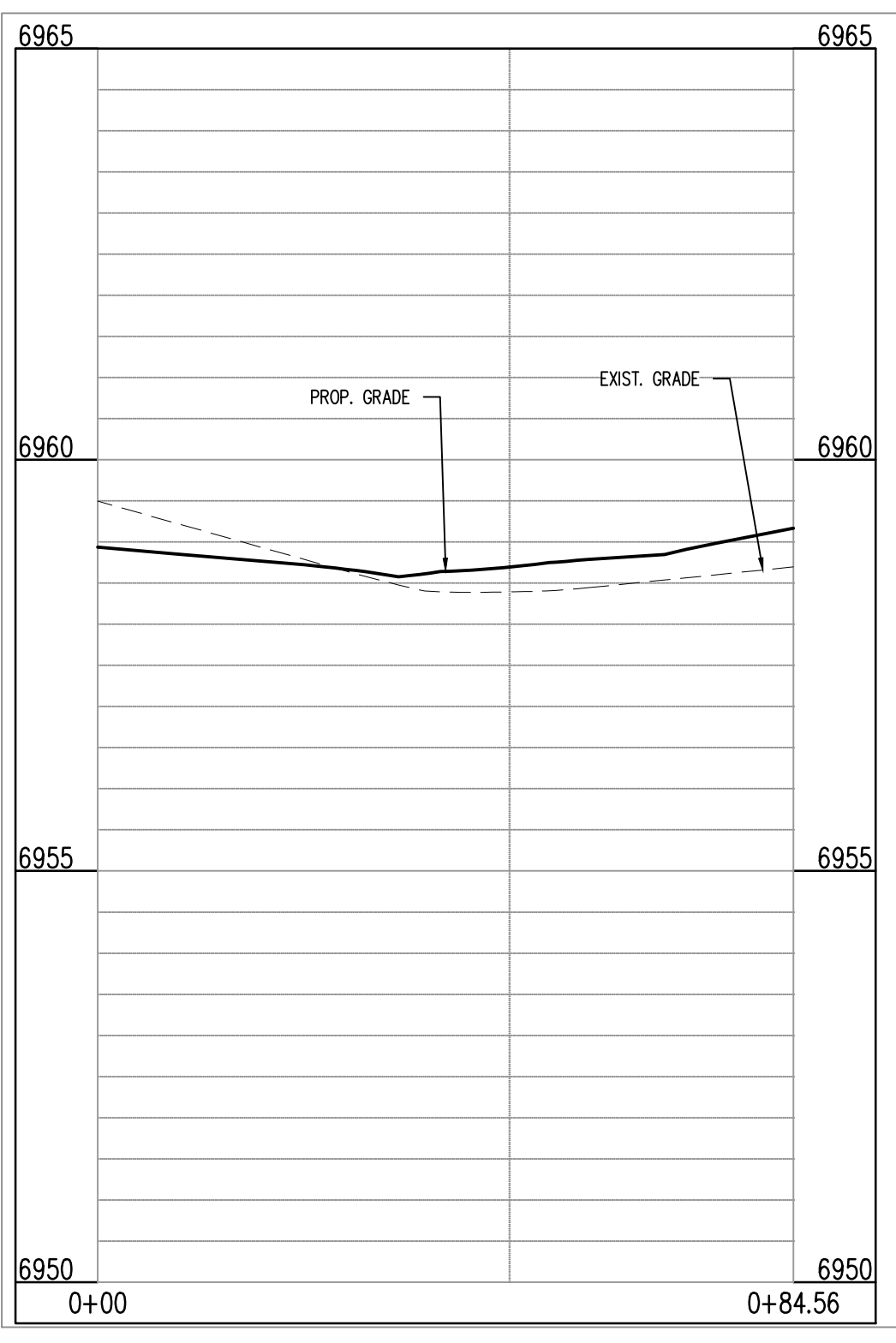
THEDFORD CT & SILK THREAD RD (SW): STA. 1+00.00 – 0+83.12  
SCALE: H:1"=20', V:1"=10'



THEDFORD CT & SILK THREAD RD (NW): STA. 1+00.00 – 0+84.40  
SCALE: H:1"=20', V:1"=10'



THEDFORD CT & WILLMORE DR (NW): STA. 1+00.00 – 0+84.56  
SCALE: H:1"=20', V:1"=10'



THEDFORD CT & WILLMORE DR (NE): STA. 1+00.00 – 0+84.56  
SCALE: H:1"=20', V:1"=10'

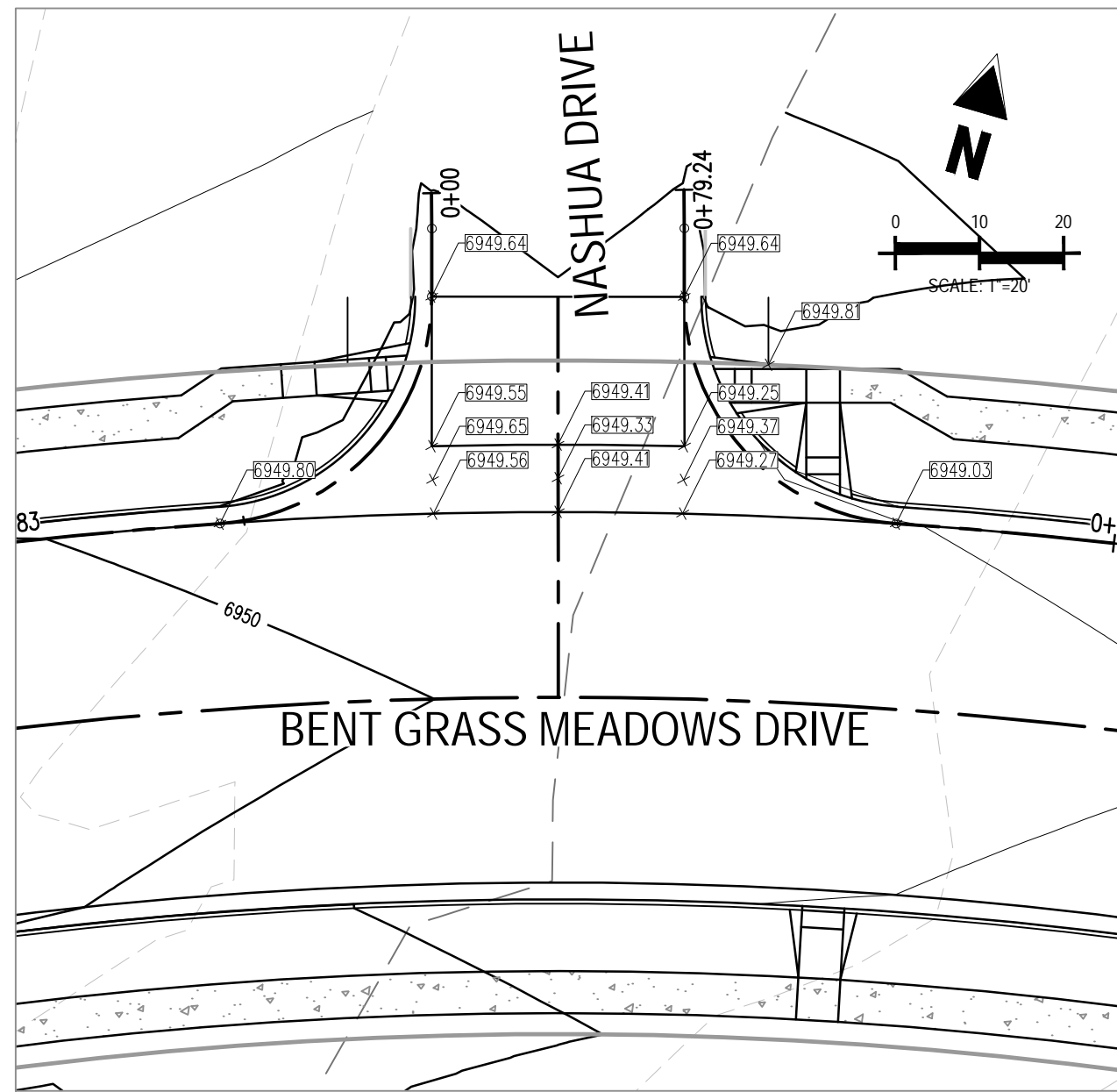
CAUTION - NOTICE TO CONTRACTOR

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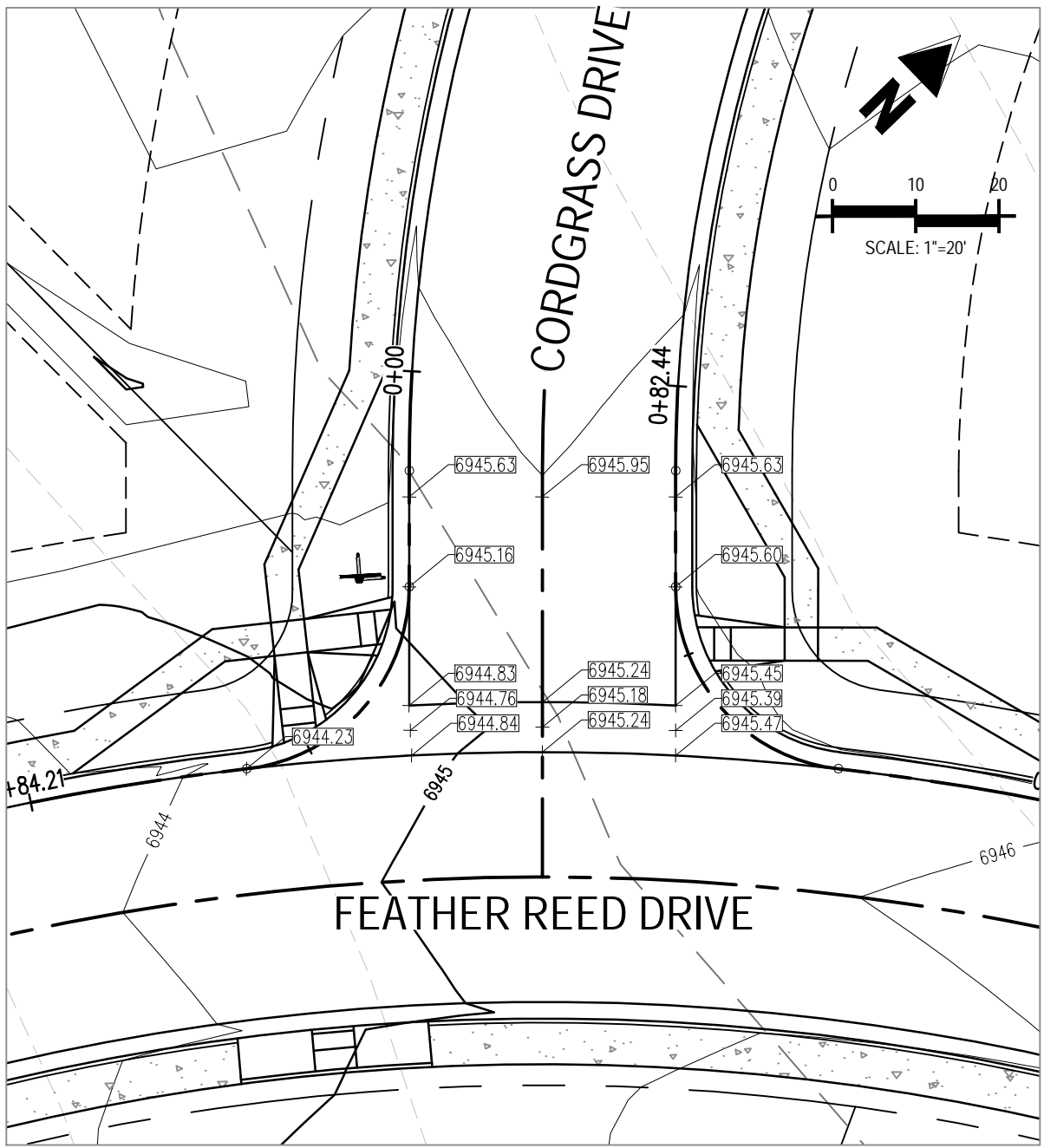


Know what's below.  
Call before you dig.

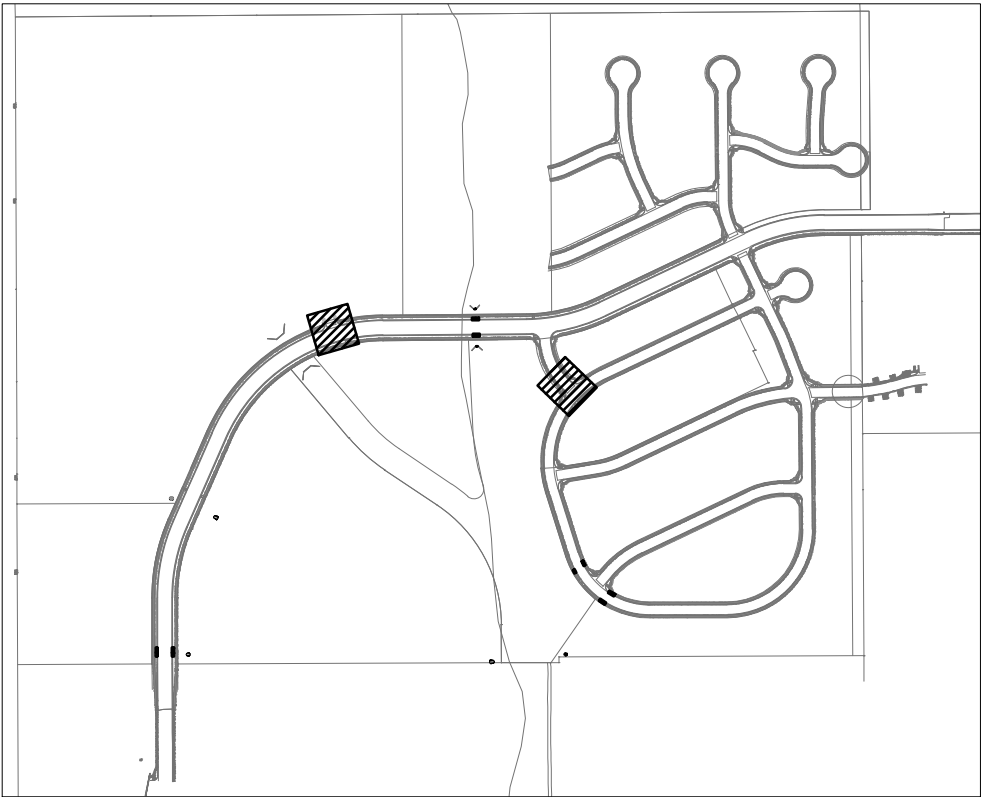




INTERSECTION OF:  
BENT GRASS MEADOWS DR & NASHUA DRIVE



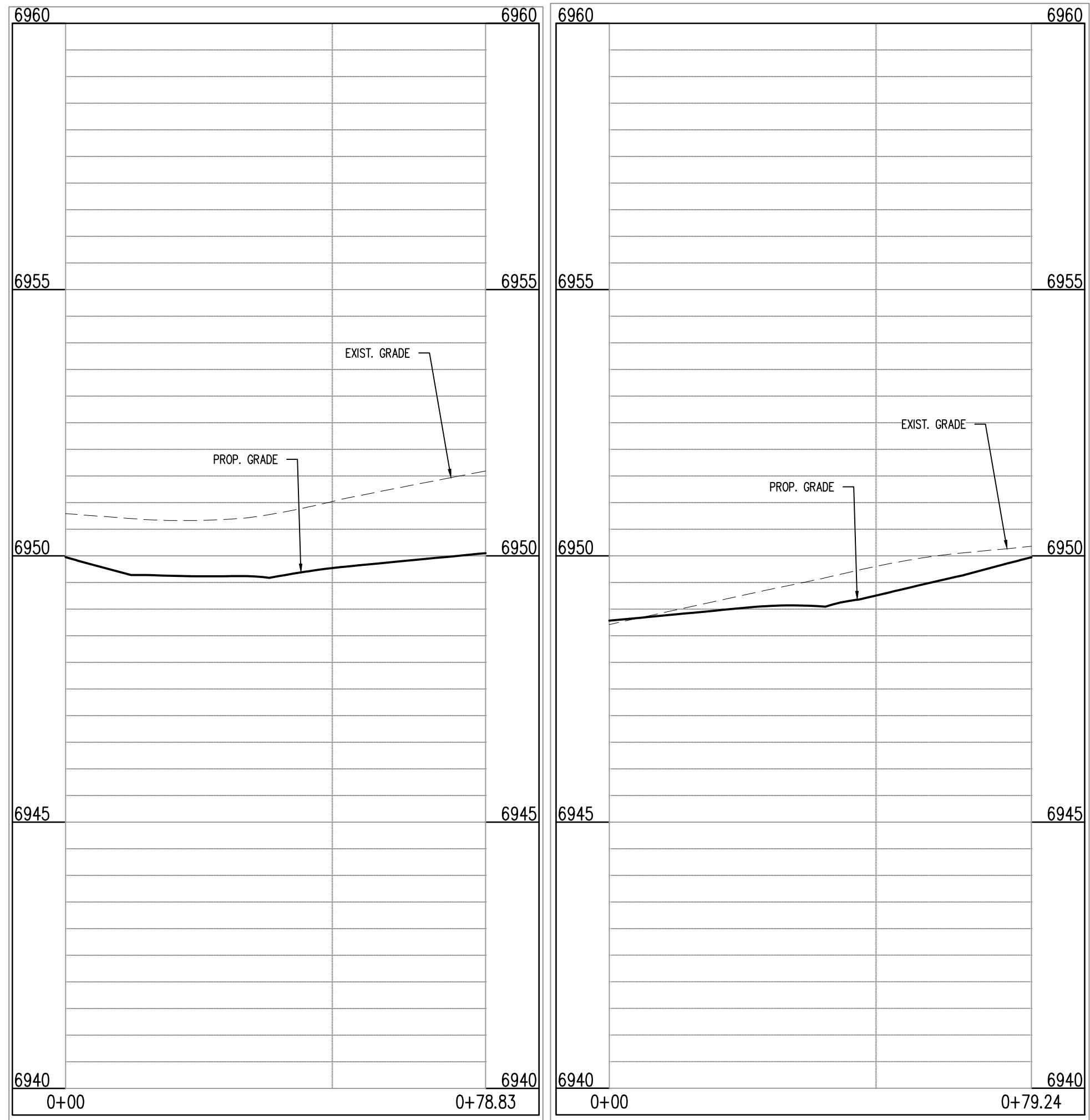
INTERSECTION OF:  
FEATHER REED DRIVE & CORDGRASS DRIVE



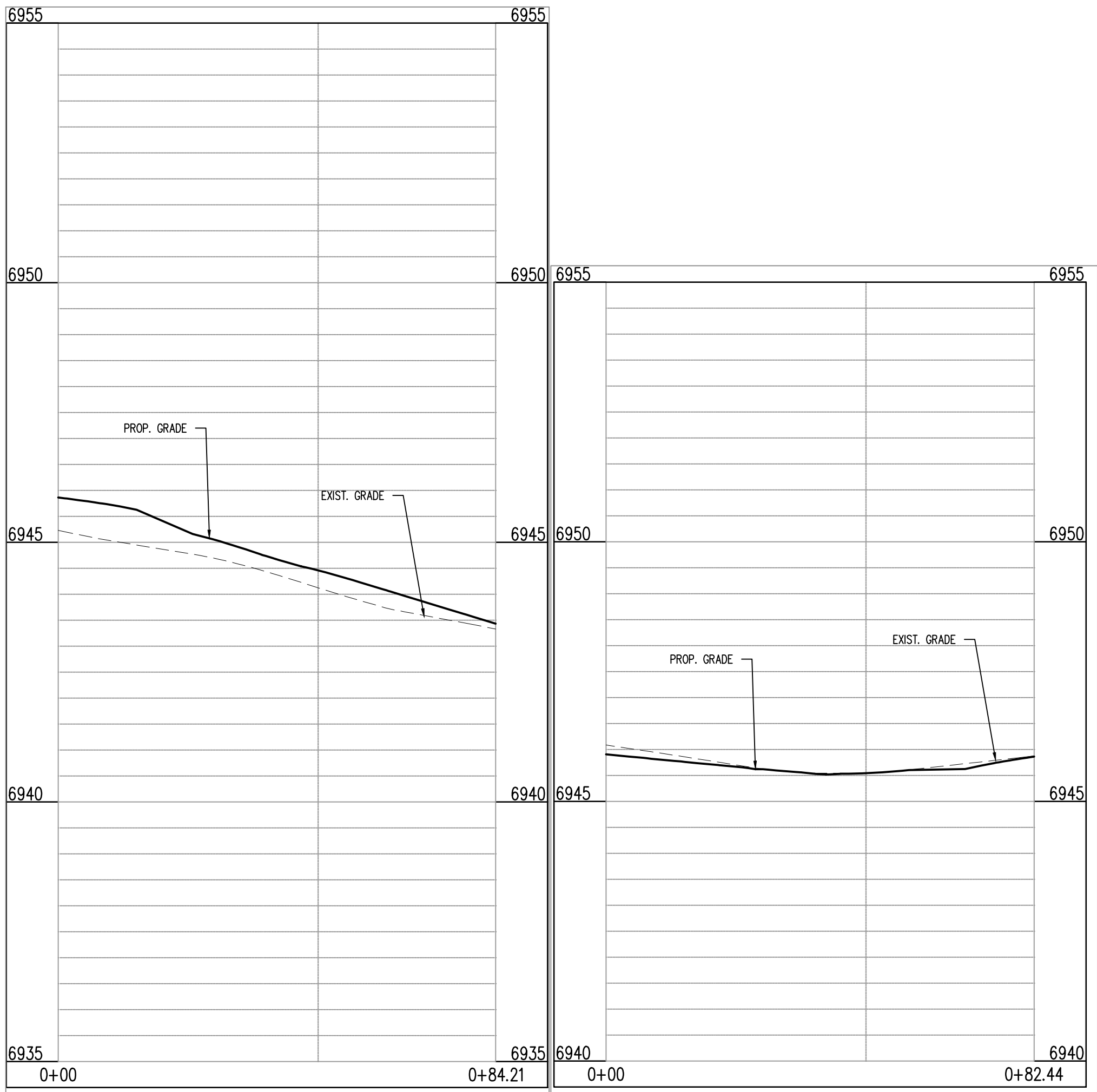
LOCATION MAP

GRADING LEGEND

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPERTY BOUNDARY
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- EXISTING FLOW
- PROPOSED FLOW
- PROPOSED SPOT ELEVATION



BENT GRASS MEADOWS DR & NASHUA DR (NW): STA. 1+00.00 – 0+78.83  
BENT GRASS MEADOWS DR & NASHUA DR (NE): STA. 1+00.00 – 0+79.24



FEATHER REED DR & CORDGRASS DR (SW): STA. 1+00.00 – 0+84.21  
FEATHER REED DR & CORDGRASS DR (NW): STA. 1+00.00 – 0+82.44

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CONSTRUCTION PLANS  
BENT GRASS RESIDENTIAL FILING NO. 2

BENT GRASS MEADOWS DRIVE  
FALCON, CO 80831 EL PASO COUNTY

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Project No:	CLH-14-20
Drawn By:	JDP
Checked By:	RGD
Date:	7/29/2019


CROSS PAN &  
CURB RETURN PROFILES

C5.01  
Sheet 21 of 38

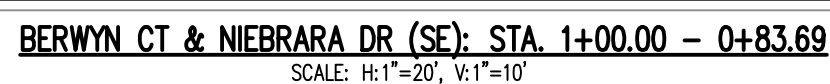
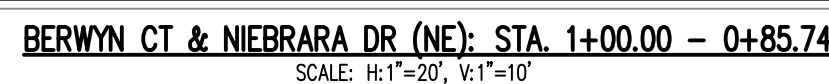
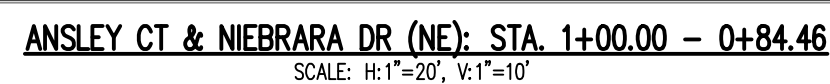
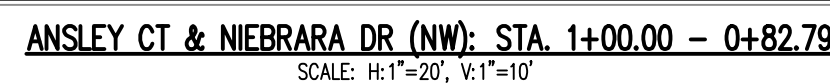




### GRADING LEGEND



- 69.31 — EXISTING MINOR CONTOUR
- 69.30 — EXISTING MAJOR CONTOUR
- 69.41 — PROPOSED MINOR CONTOUR
- 69.40 — PROPOSED MAJOR CONTOUR
- PROPERTY BOUNDARY
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- EXISTING FLOW
- PROPOSED FLOW
- > 69.30.42 PROPOSED SPOT ELEVATION



CAUTION - NOTICE TO CONTRACTOR

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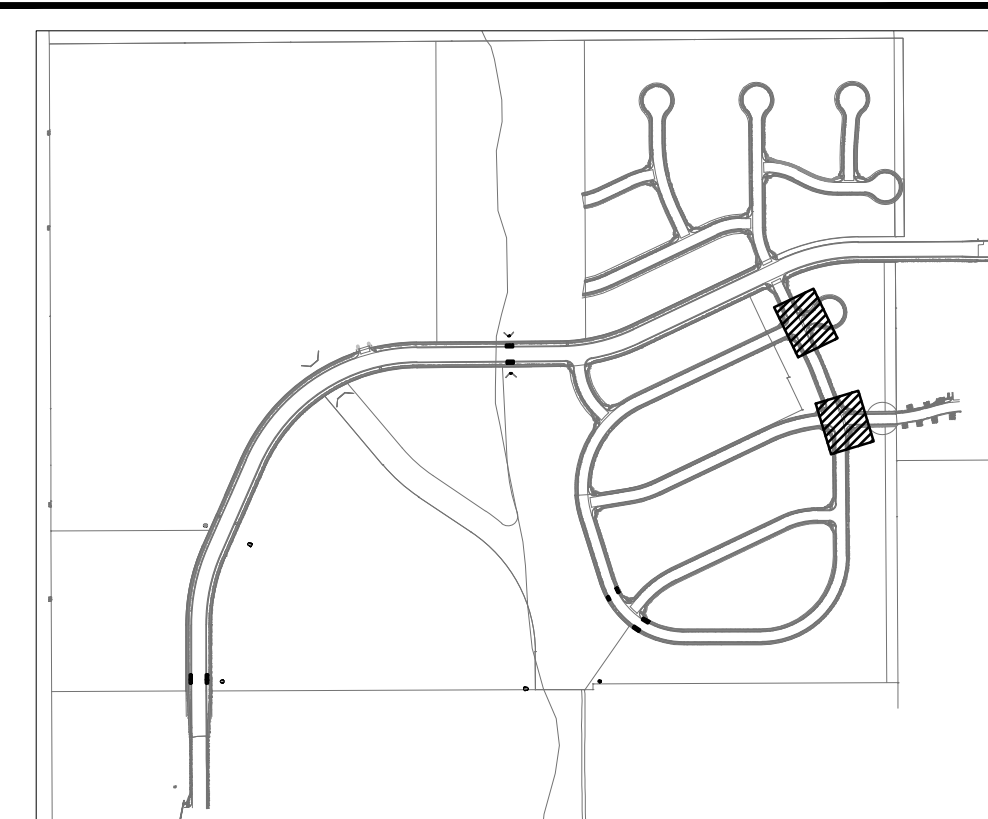
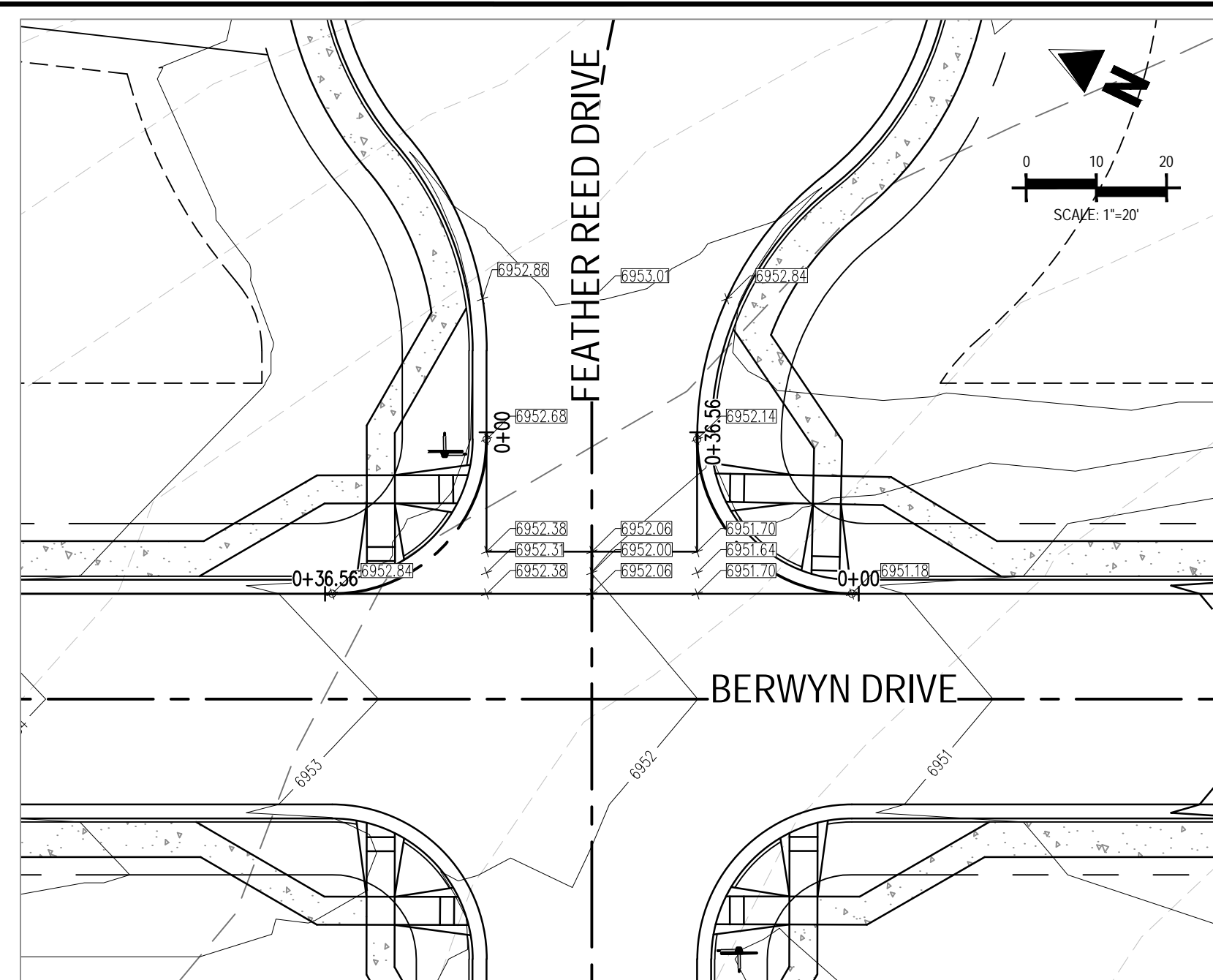
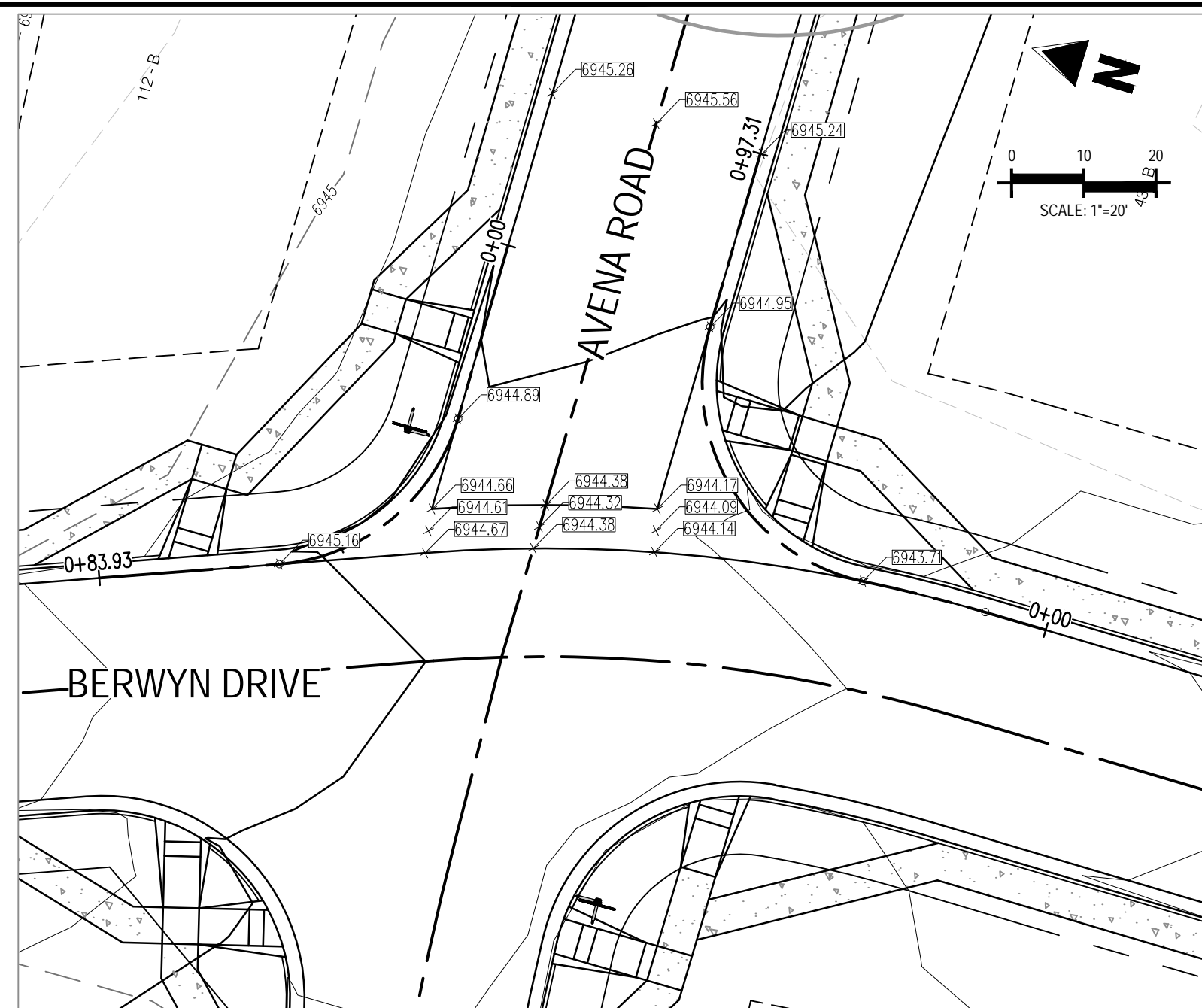


Project No:	CLH-14.20
Drawn By:	JDP
Checked By:	RGD
Date:	7/29/2019

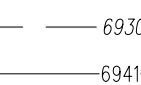
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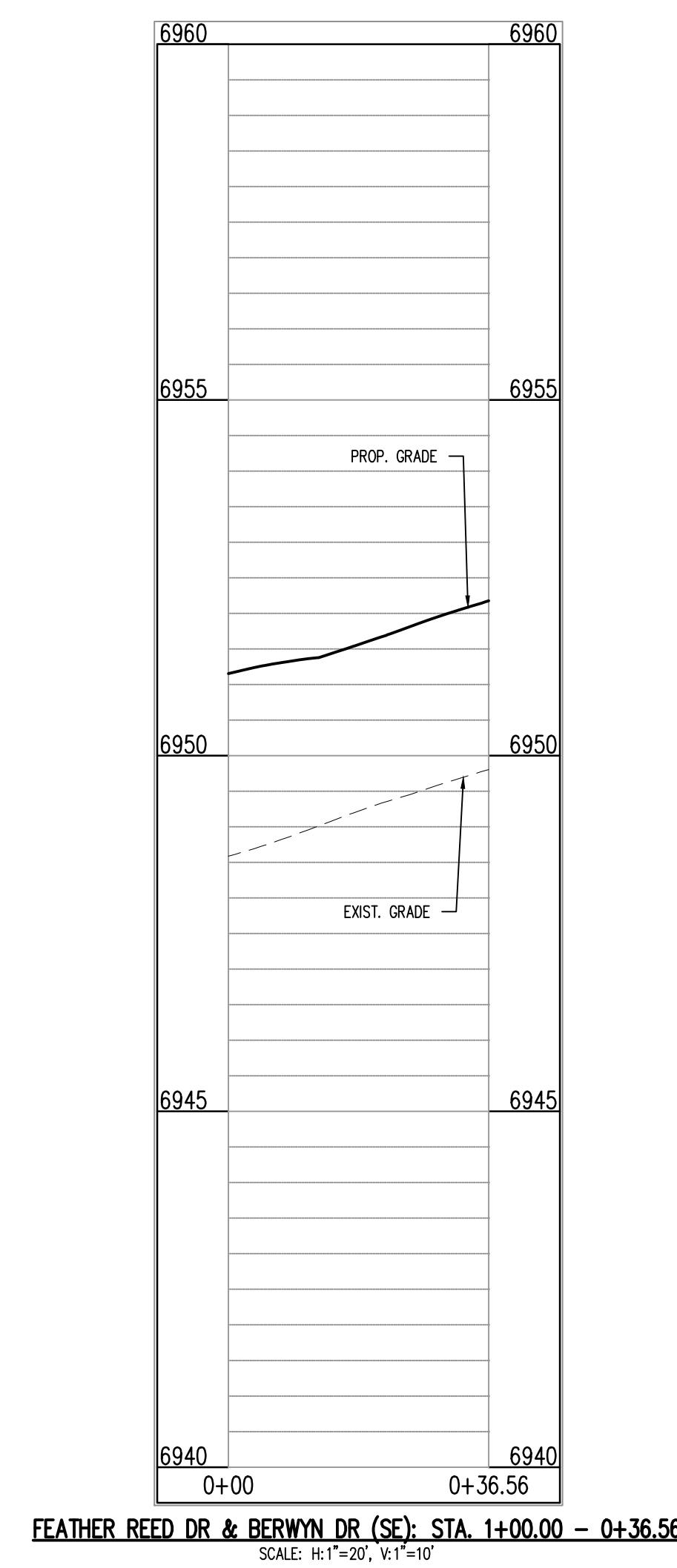
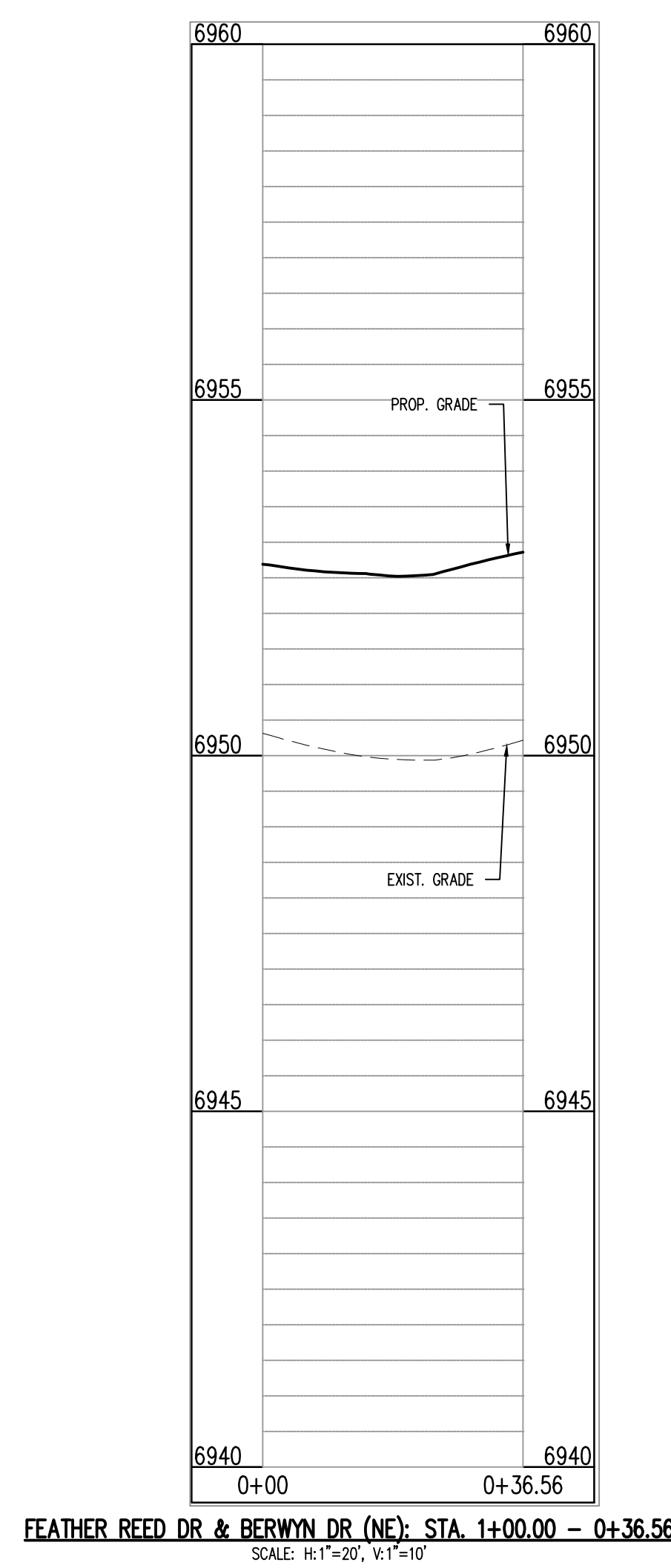
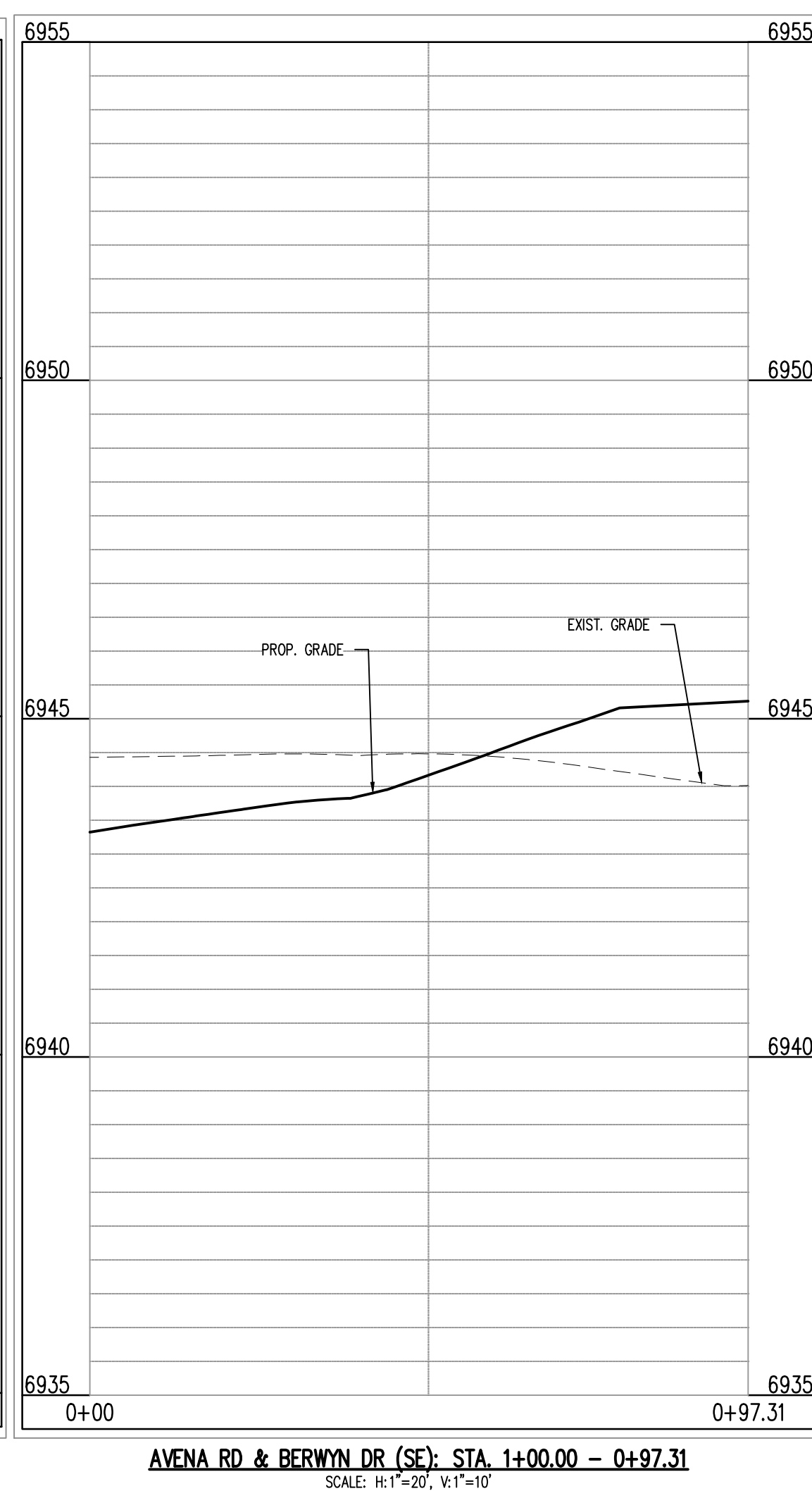
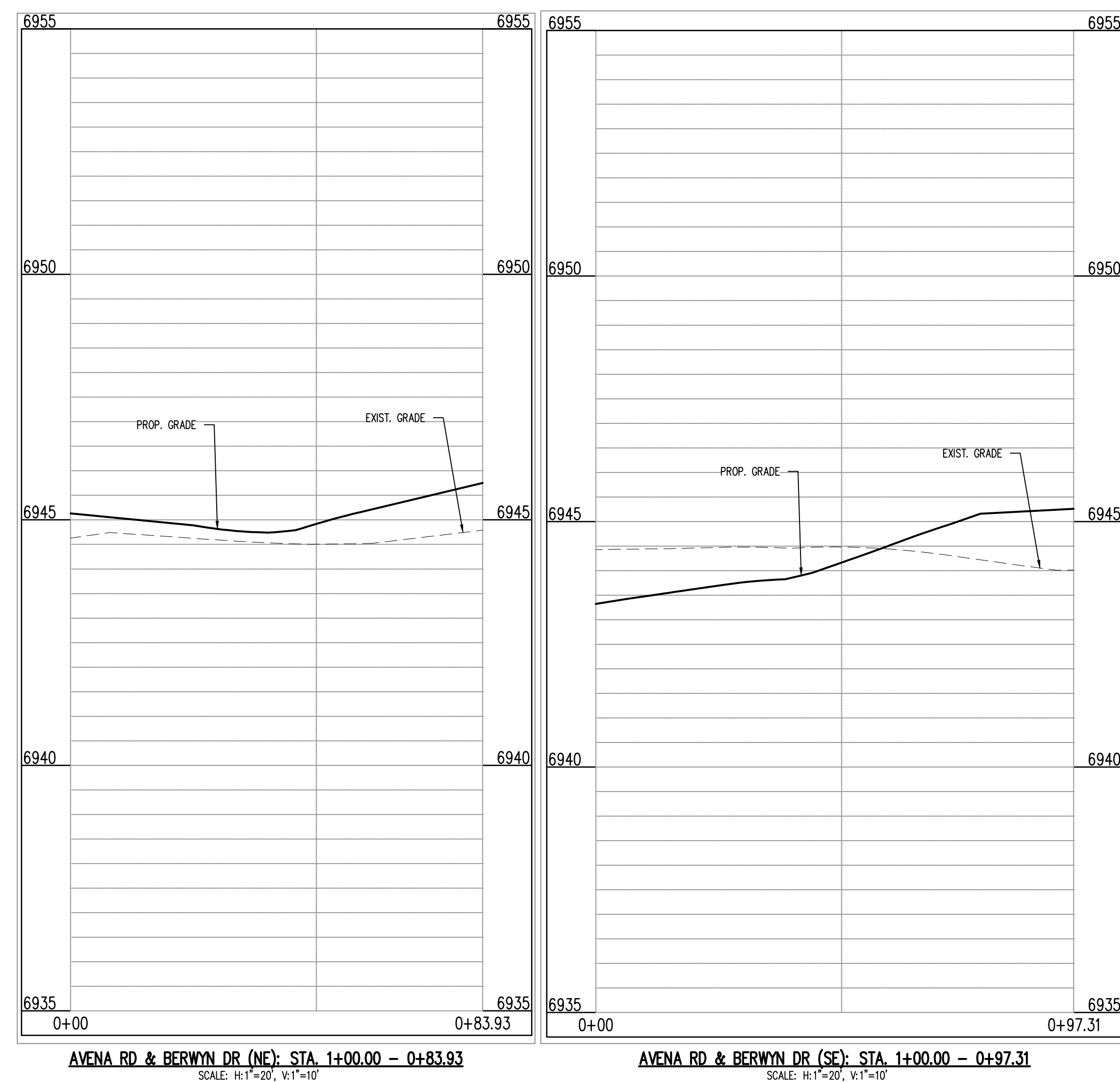
C5.02





### GRADING LEGEND

- 
- 6931 EXISTING MINOR CONTOUR
  - 6930 EXISTING MAJOR CONTOUR
  - 6941 PROPOSED MINOR CONTOUR
  - 6940 PROPOSED MAJOR CONTOUR
  - PROPERTY BOUNDARY
  - EXISTING STORM SEWER
  - PROPOSED STORM SEWER
  - EXISTING FLOW
  - PROPOSED FLOW
  - PROPOSED SPOT ELEVATION



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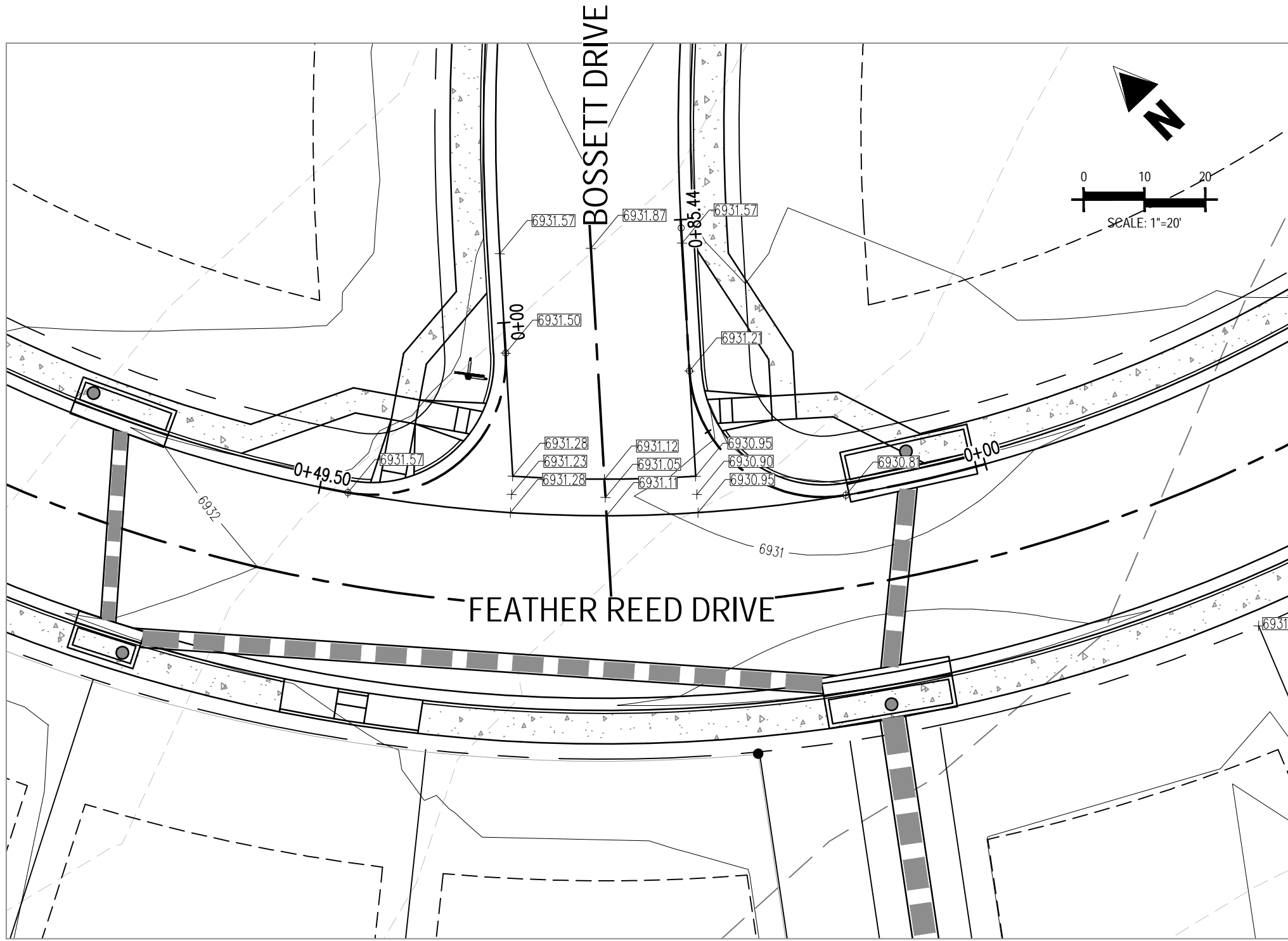
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Project No:	CLH-14.2C
Drawn By:	JDF
Checked By:	RGE
Date:	7/29/2019

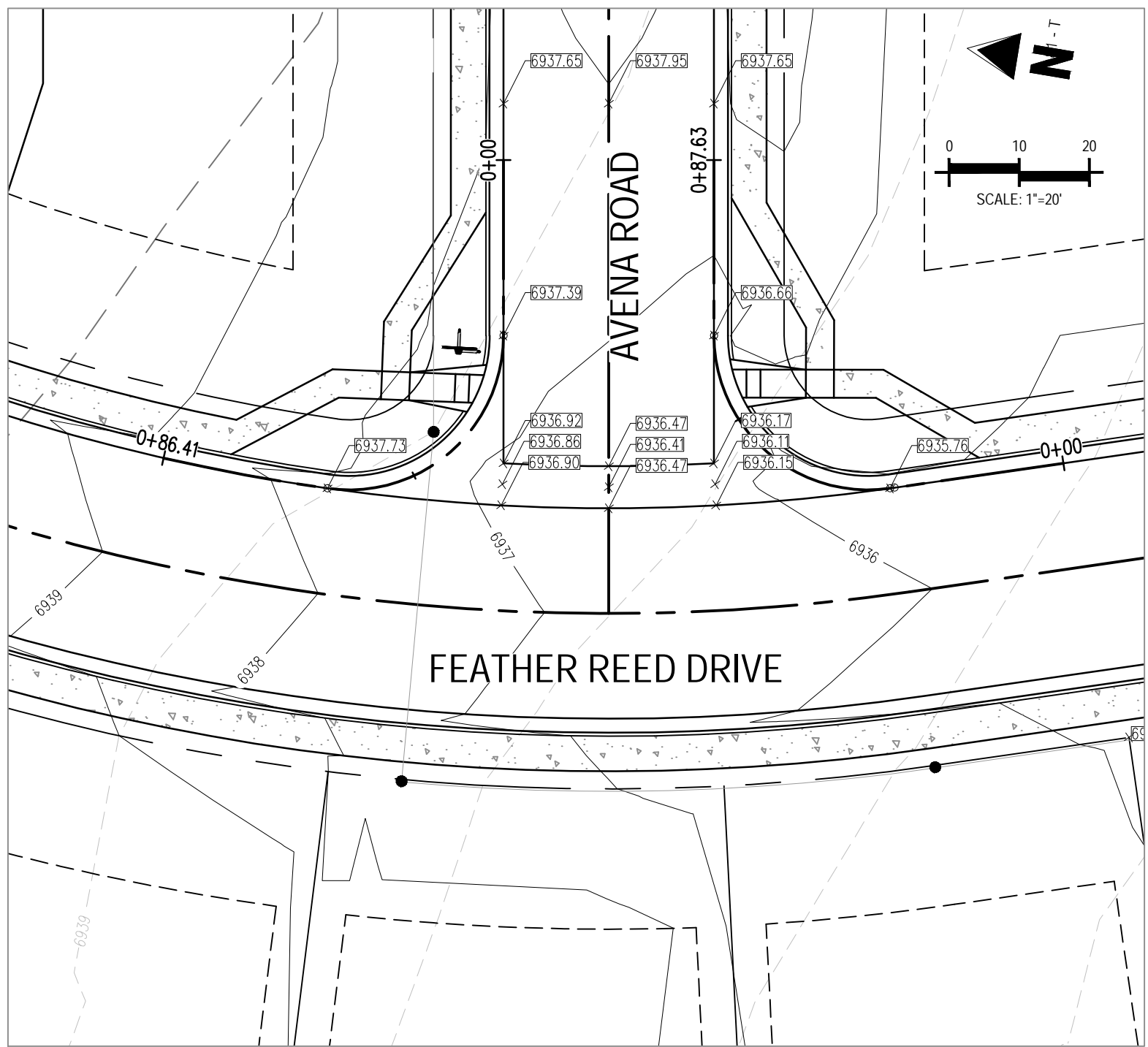
## CROSS PAN & CURB RETURN PROFILES

C5.03

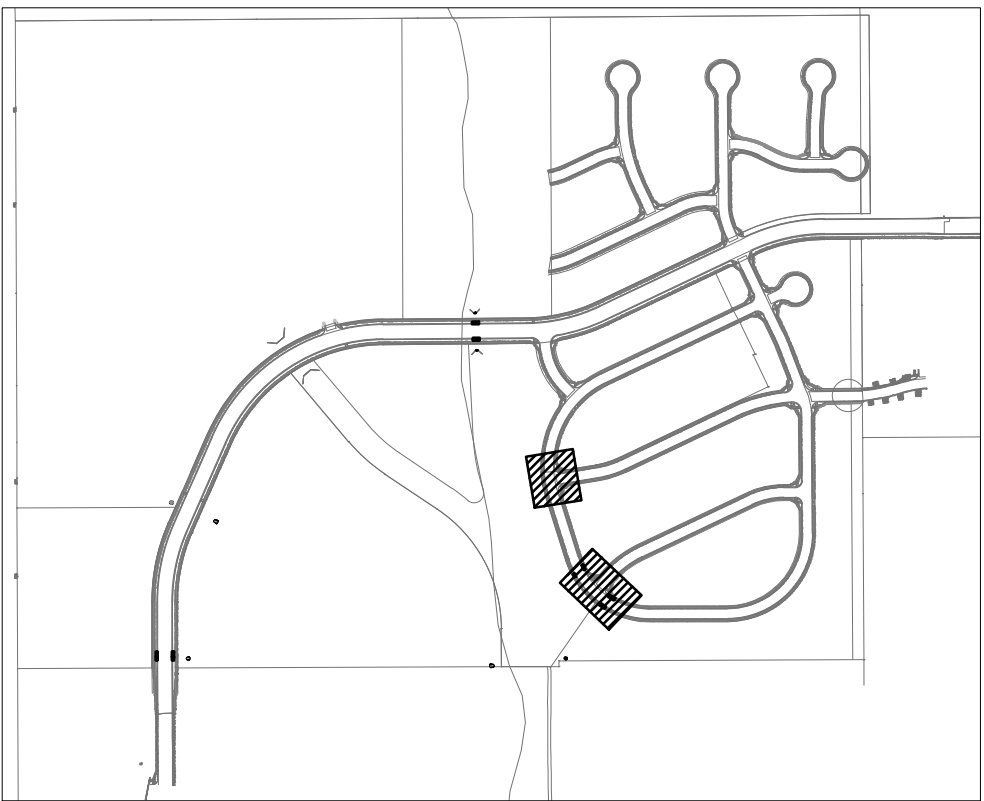




INTERSECTION OF:  
BERWYN DRIVE & BOSSETT DRIVE



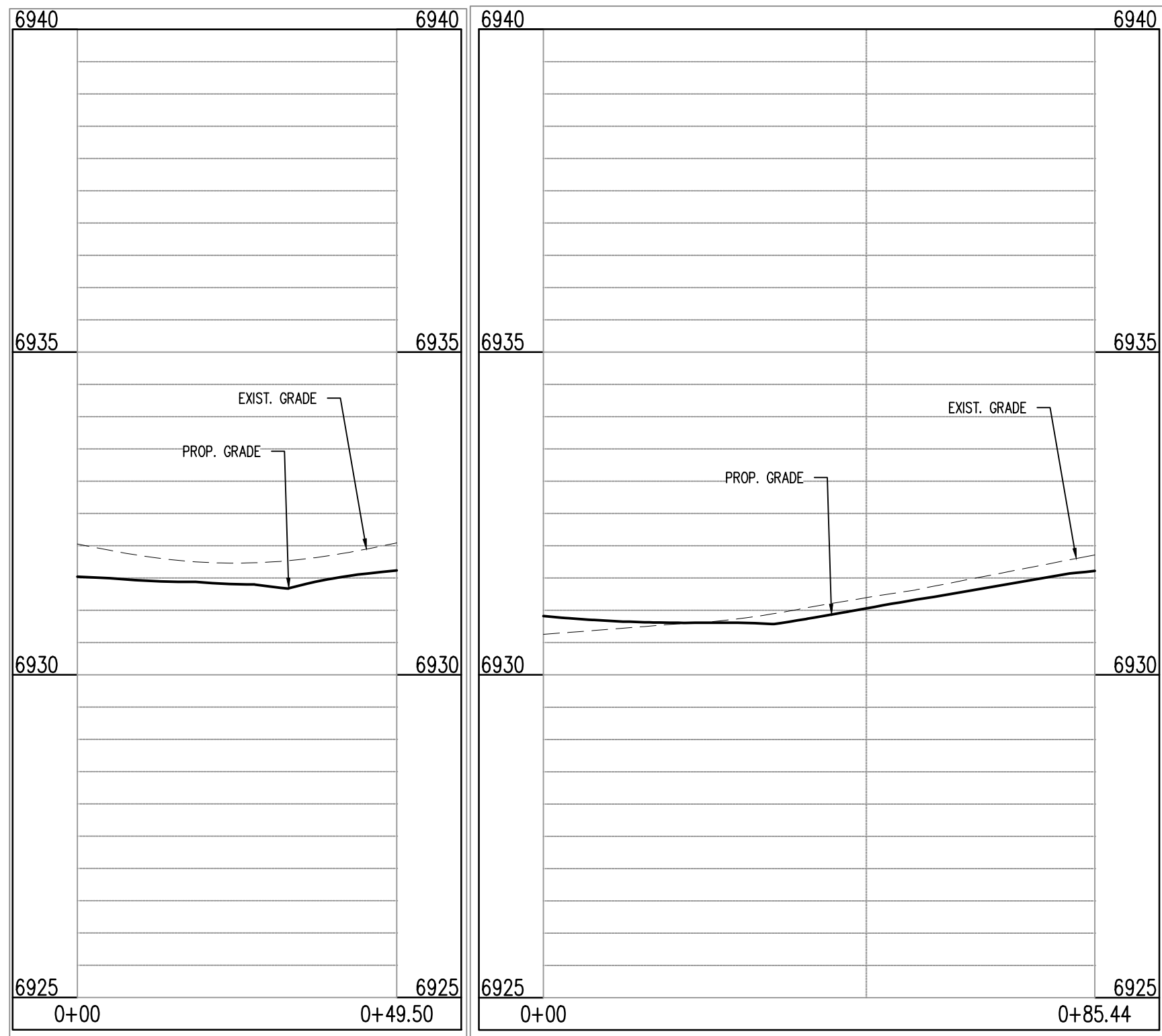
INTERSECTION OF:  
FEATHER REED DRIVE & AVENA ROAD



LOCATION MAP

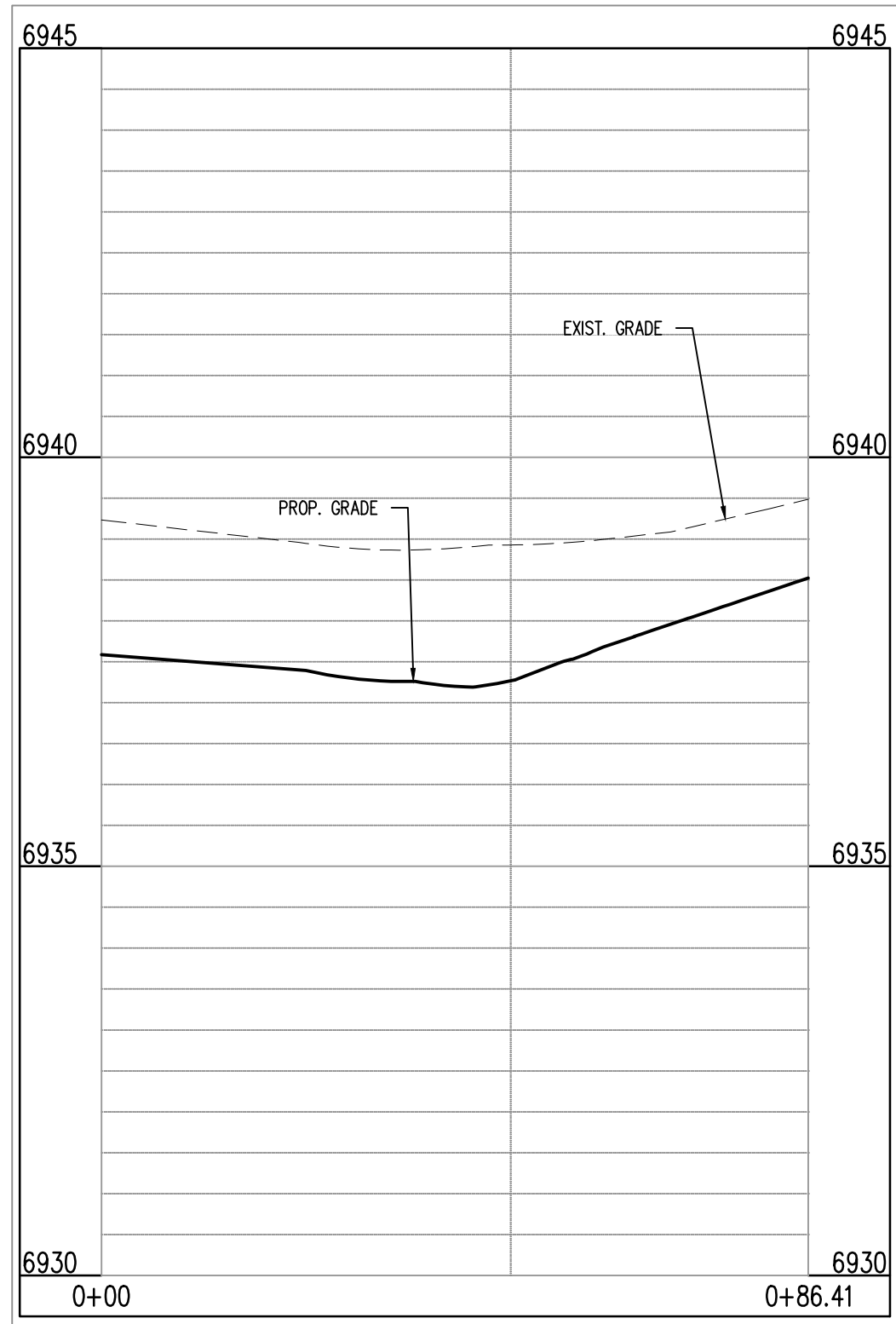
GRADING LEGEND

- 6931 EXISTING MINOR CONTOUR
- 6930 EXISTING MAJOR CONTOUR
- 6941 PROPOSED MINOR CONTOUR
- 6940 PROPOSED MAJOR CONTOUR
- PROPERTY BOUNDARY
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- EXISTING FLOW
- PROPOSED FLOW
- 6930.40 PROPOSED SPOT ELEVATION

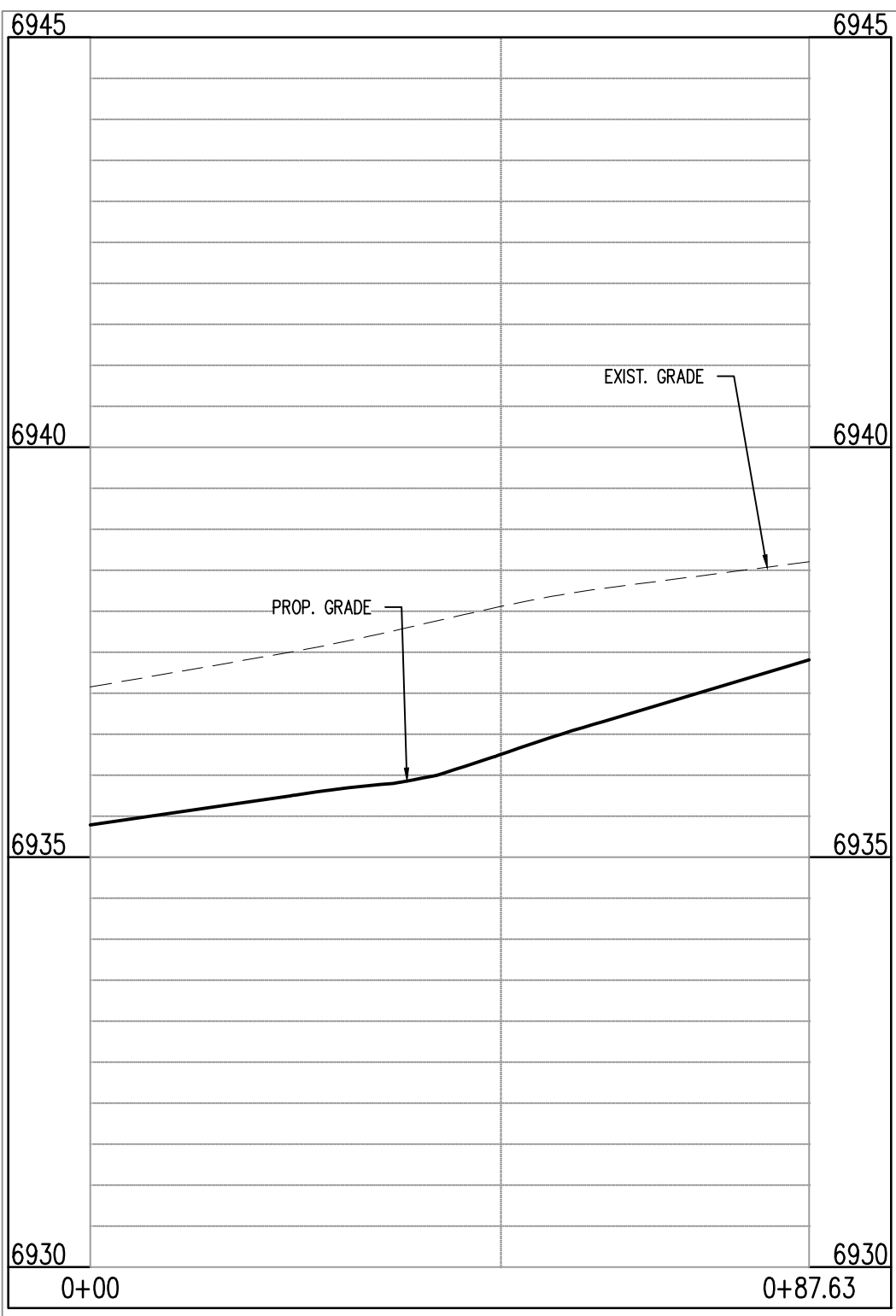


BERWYN DR & BOSSETT DR (NW): STA. 1+00.00 – 0+49.50  
SCALE: H:1"=20', V:1"=10'

BERWYN DR & BOSSETT DR (NE): STA. 1+00.00 – 0+85.44  
SCALE: H:1"=20', V:1"=10'



FEATHER REED DR & AVENA RD (NE): STA. 1+00.00 – 0+86.41  
SCALE: H:1"=20', V:1"=10'



FEATHER REED DR & AVENA RD (SE): STA. 1+00.00 – 0+87.63  
SCALE: H:1"=20', V:1"=10'

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CONSTRUCTION PLANS  
BENT GRASS RESIDENTIAL FILING NO. 2

BENT GRASS MEADOWS DRIVE  
FALCON, CO 80831 EL PASO COUNTY

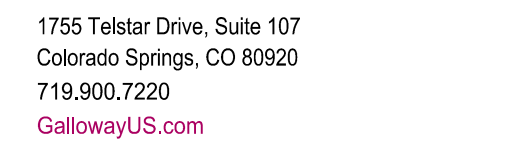
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Project No:	CLH-14-20
Drawn By:	JDP
Checked By:	RGD
Date:	7/29/2019

CROSS PAN &  
CURB RETURN PROFILES











C5.04  
Sheet 24 of 38





SCALE: 1"=600'

### GRADING LEGEND

-  EXISTING MINOR CONTOUR  
 EXISTING MAJOR CONTOUR  
 PROPOSED MINOR CONTOUR  
 PROPOSED MAJOR CONTOUR  
 PROPERTY BOUNDARY  
 EXISTING STORM SEWER  
 PROPOSED STORM SEWER  
 EXISTING FLOW  
 PROPOSED FLOW  
 PROPOSED SPOT ELEVATION



CONSTRUCTION PLANS  
BENT GRASS RESIDENTIAL FILING NO. 2

BENT GRASS MEADOWS DRIVE  
FALCON, CO 80831 EL PASO COUNTY

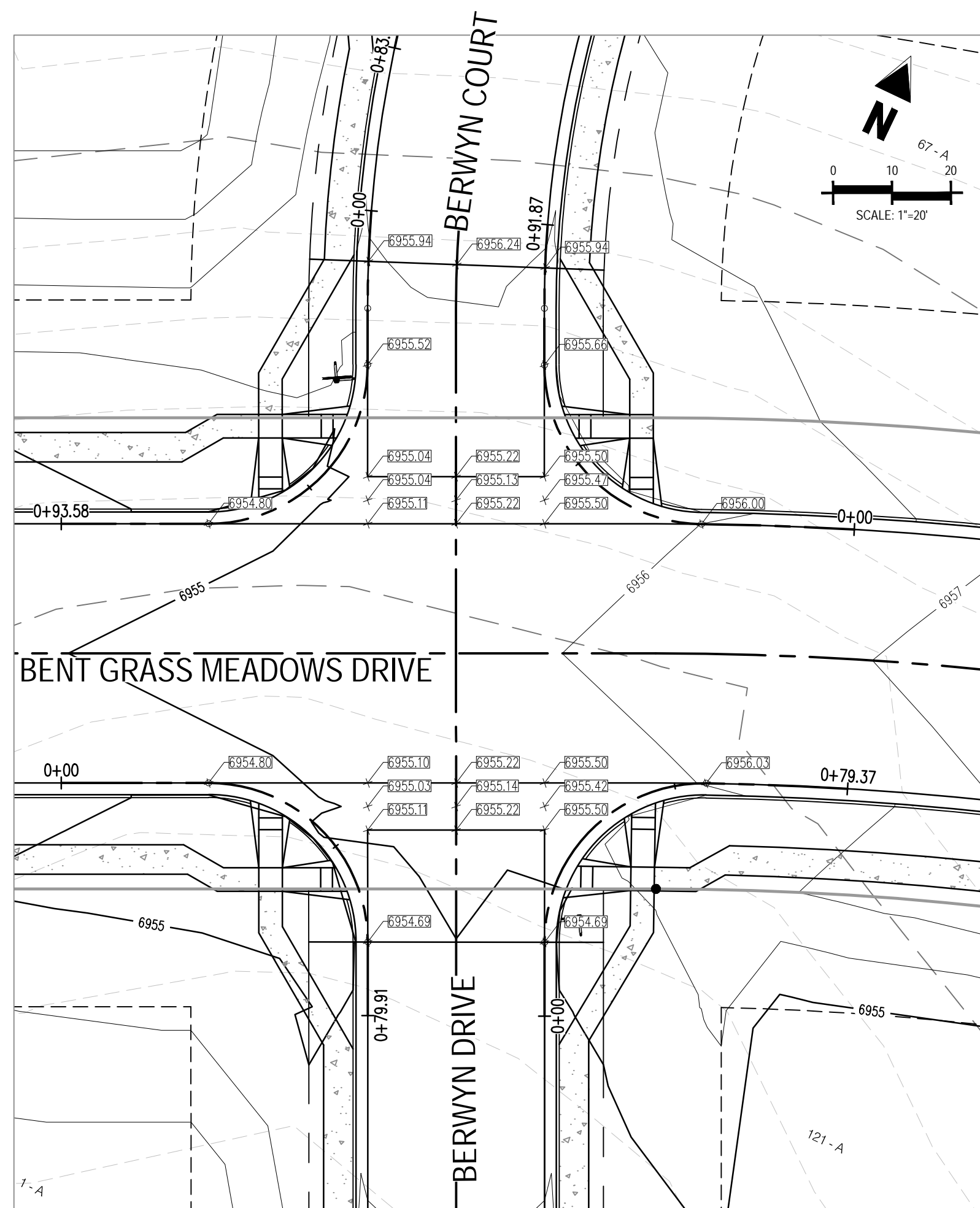
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Project No:	CLH-14.20
Drawn By:	JDP
Checked By:	RGD
Date:	7/29/2019

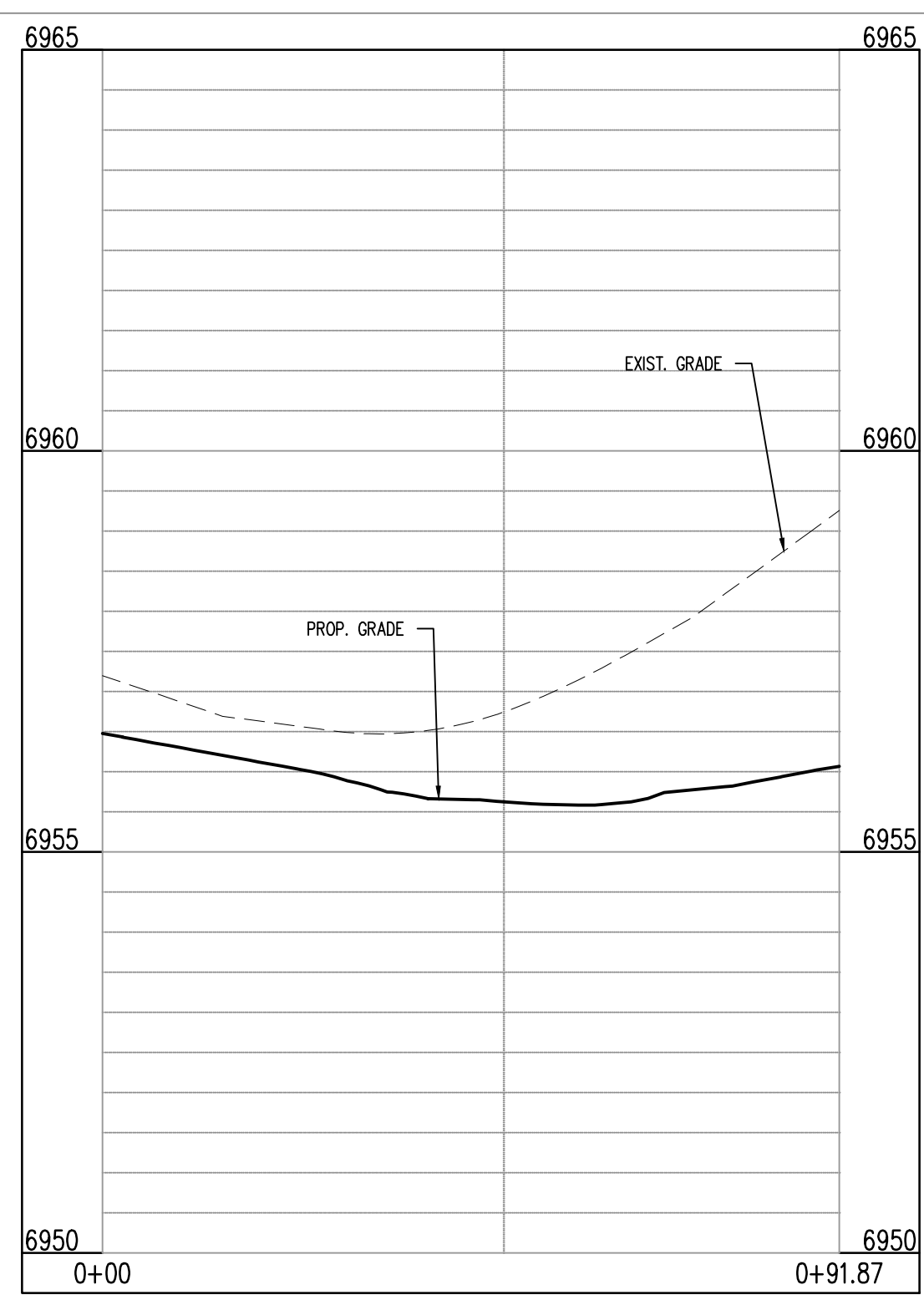
## CROSS PAN & CURB RETURN PROFILES

C5.05

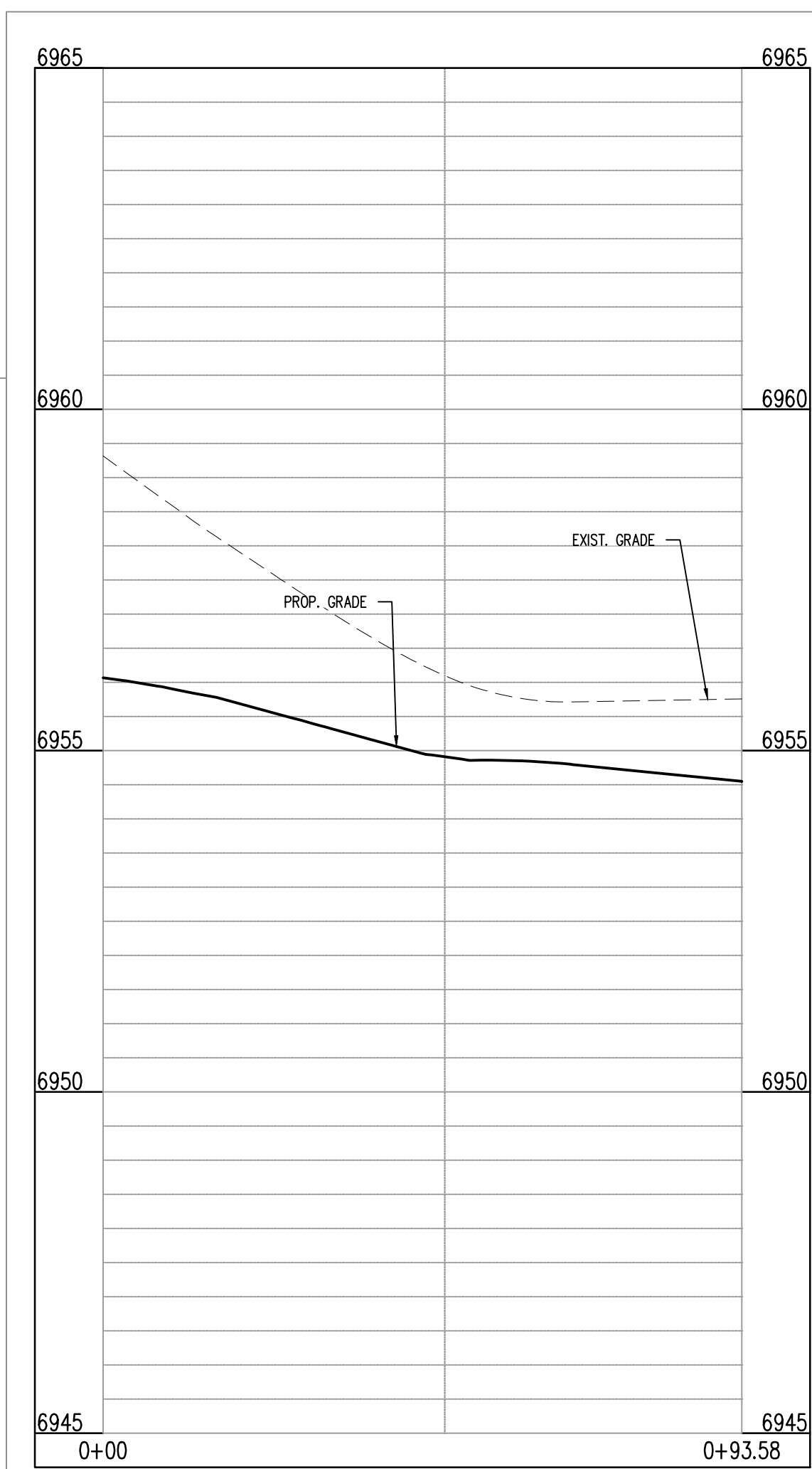
Sheet 25 of 38



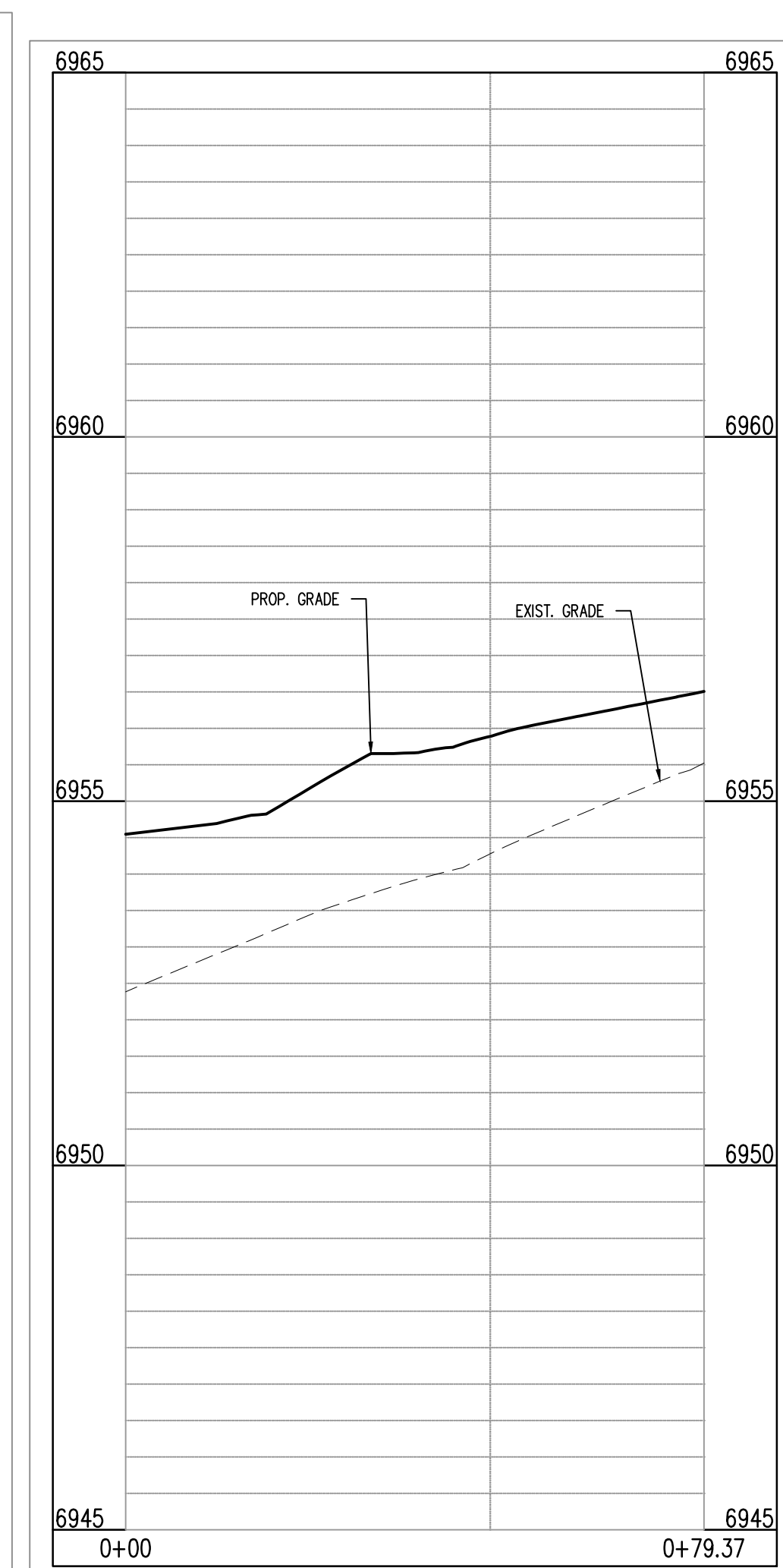
INTERSECTION OF:  
BENT GRASS MEADOWS DRIVE, BERWYN COURT & BERWYN DRIVE



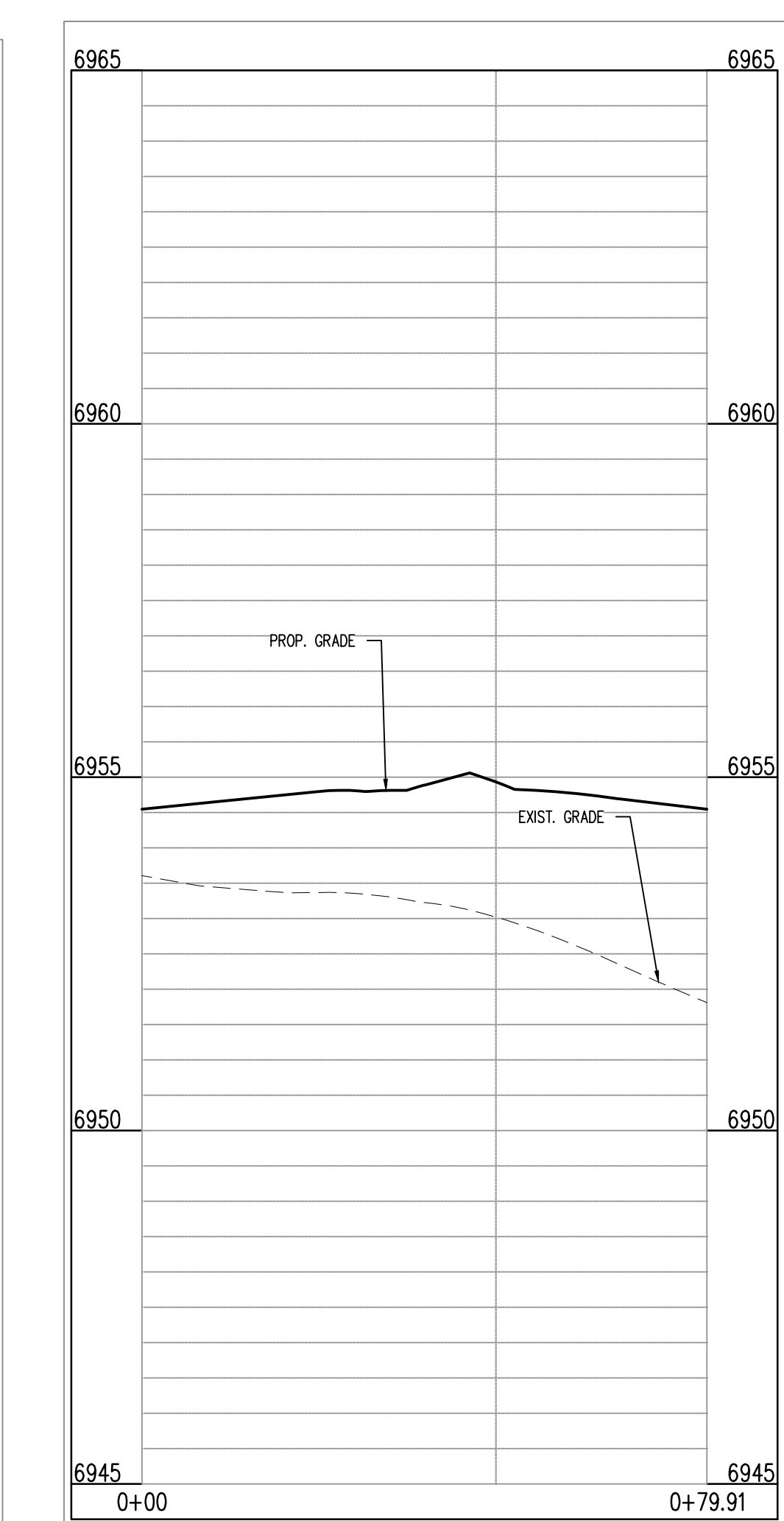
BENT GRASS MEADOWS DR & BERWYN CT (NE): STA. 1+00.00 - 0+91.87  
SCALE: H:1"=20', V:1"=10'



**BENT GRASS MEADOWS DR & BERWYN CT (NW): STA. 1+00.00 - 0+93.58**  
SCALE: H:1"=20', V:1"=10'



BENT GRASS MEADOWS DR & BERWYN DR (SE): STA. 1+00.00 - 0+79.37  
SCALE: H:1"=20', V:1"=10'



BENT GRASS MEADOWS DR & BERWYN DR (SW): STA. 1+00.00 - 0+79.91  
SCALE: H:1"=20', V:1"=10'

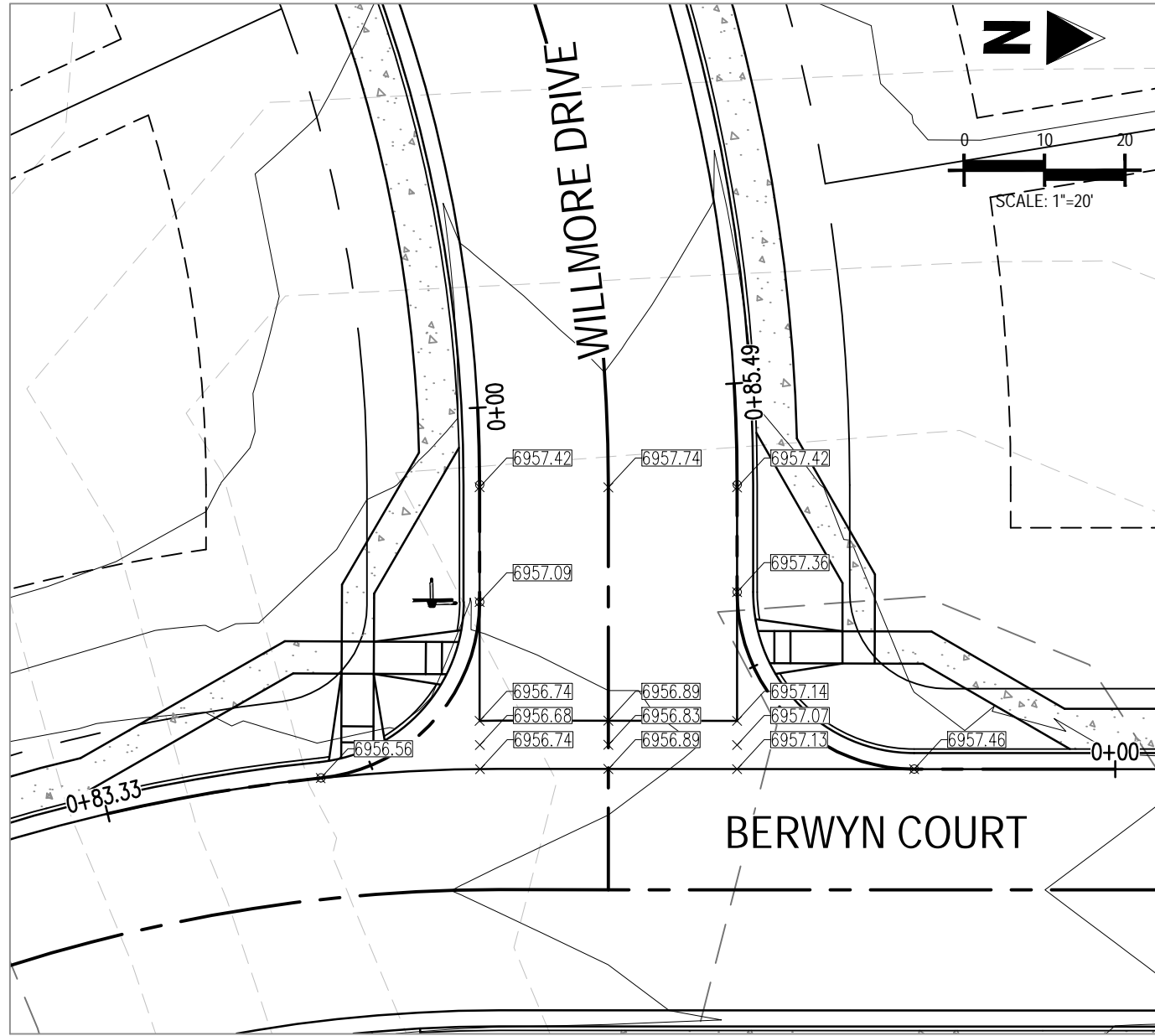
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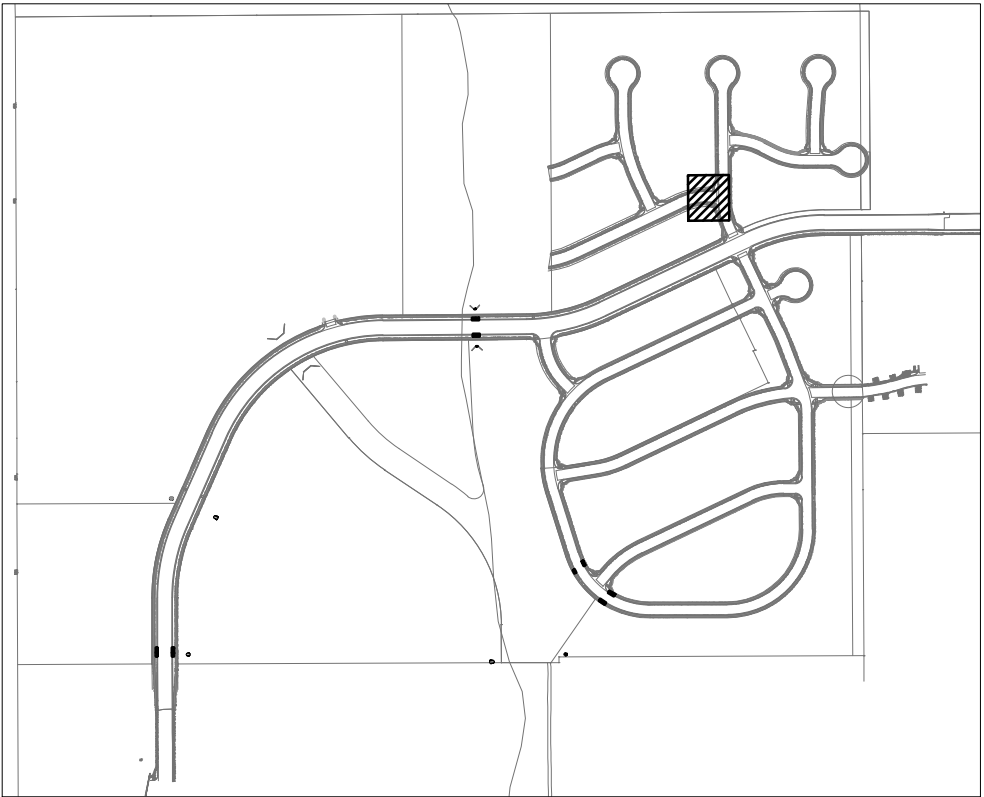


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INTERSECTION OF:  
WILLMORE DRIVE & BERWYN COURT

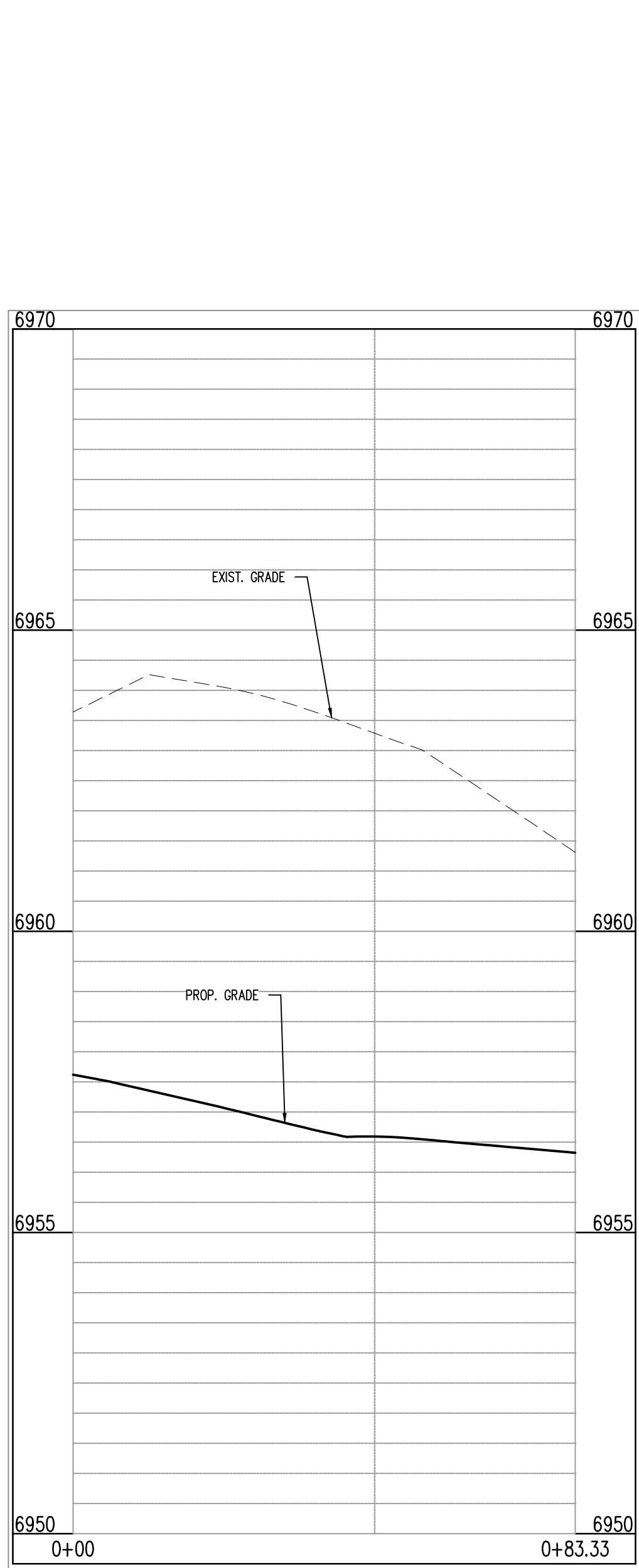


LOCATION MAP

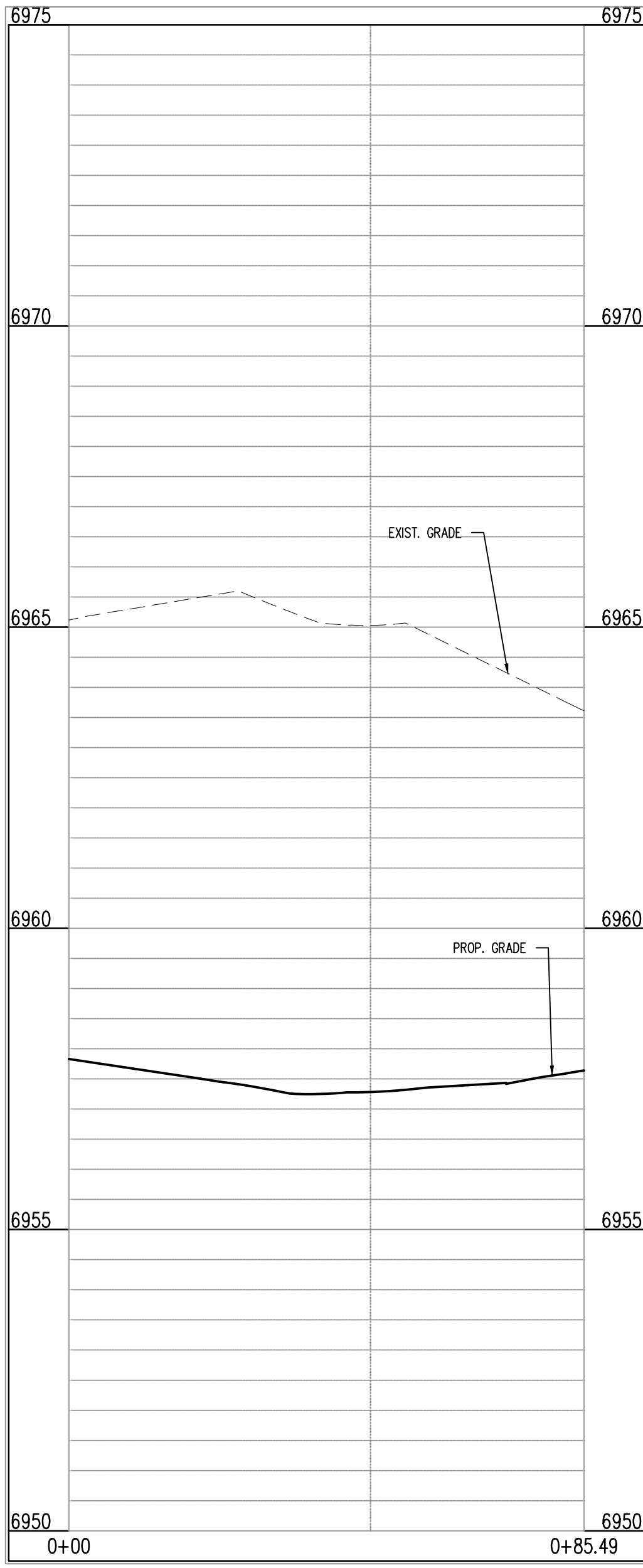
SCALE: 1"=600'

GRADING LEGEND

- 69.31 EXISTING MINOR CONTOUR
- 69.30 EXISTING MAJOR CONTOUR
- 69.41 PROPOSED MINOR CONTOUR
- 69.40 PROPOSED MAJOR CONTOUR
- PROPERTY BOUNDARY
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- EXISTING FLOW
- PROPOSED FLOW
- 69.30.49 PROPOSED SPOT ELEVATION



BERWYN DR & WILLMORE DR (SW): STA. 1+00.00 – 0+83.33  
SCALE: H:1"=20', V:1"=10'



BERWYN DR & WILLMORE DR (NW): STA. 1+00.00 – 0+85.49  
SCALE: H:1"=20', V:1"=10'

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CONSTRUCTION PLANS  
BENT GRASS RESIDENTIAL FILING NO. 2

BENT GRASS MEADOWS DRIVE  
FALCON, CO 80831 EL PASO COUNTY

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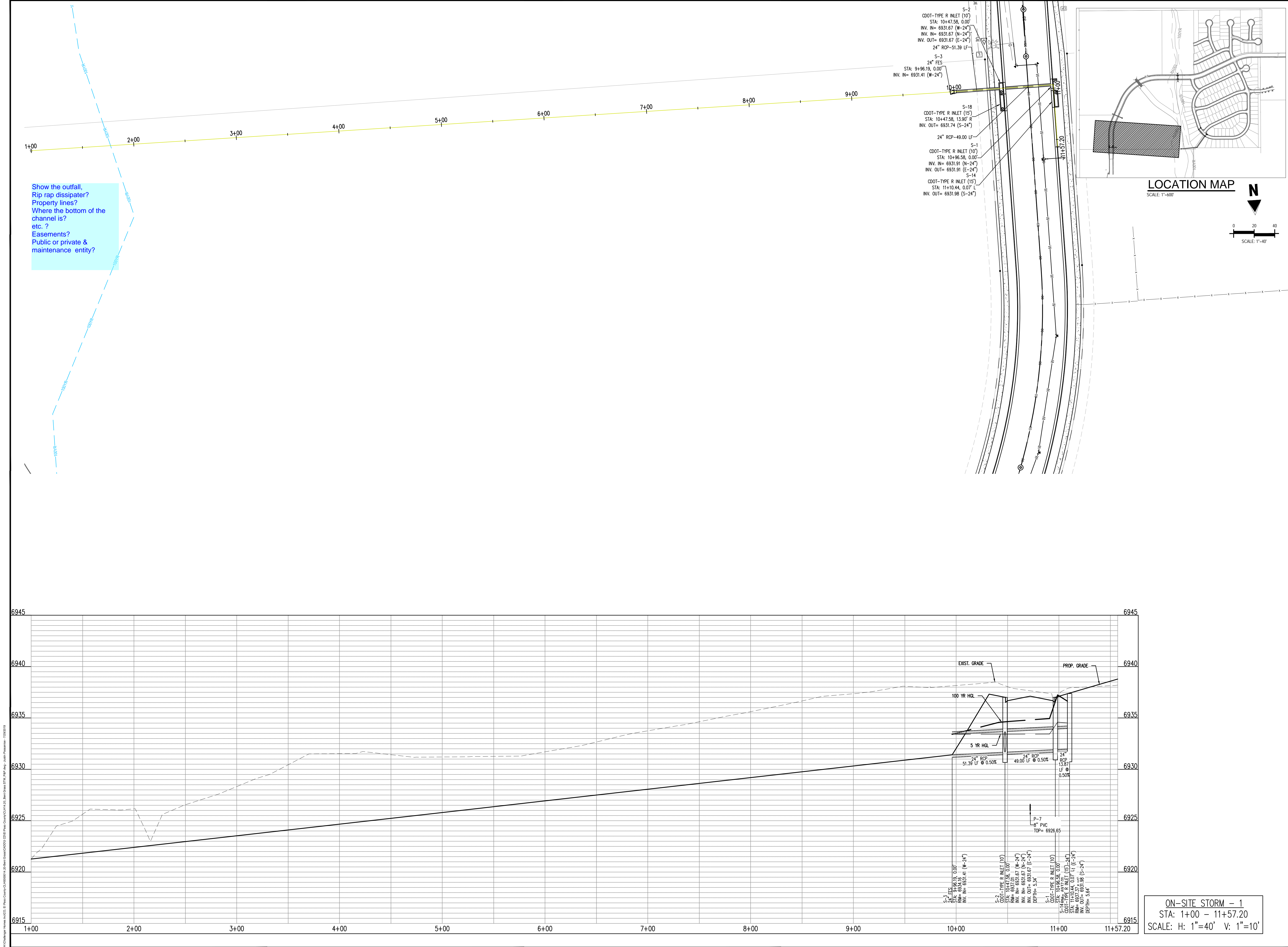
Project No:	CLH-14-20
Drawn By:	JDP
Checked By:	RGD
Date:	7/29/2019

CROSS PAN &  
CURB RETURN PROFILES

C5.06

Sheet 26 of 38







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CONSTRUCTION PLANS  
BENT GRASS RESIDENTIAL FILING NO. 2

BENT GRASS MEADOWS DRIVE  
FALCON, CO 80831 EL PASO COUNTY

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Project No: CLH-14-20  
Drawn By: JDP  
Checked By: RGD  
Date: 7/29/2019

BENT GRASS MEADOWS DRIVE  
STORM PLAN & PROFILE

C6.00

Sheet 27 of 38





CONSTRUCTION PLANS  
BENT GRASS RESIDENTIAL FILING NO. 2

BENT GRASS MEADOWS DRIVE  
FALCON, CO 80831 EL PASO COUNTY

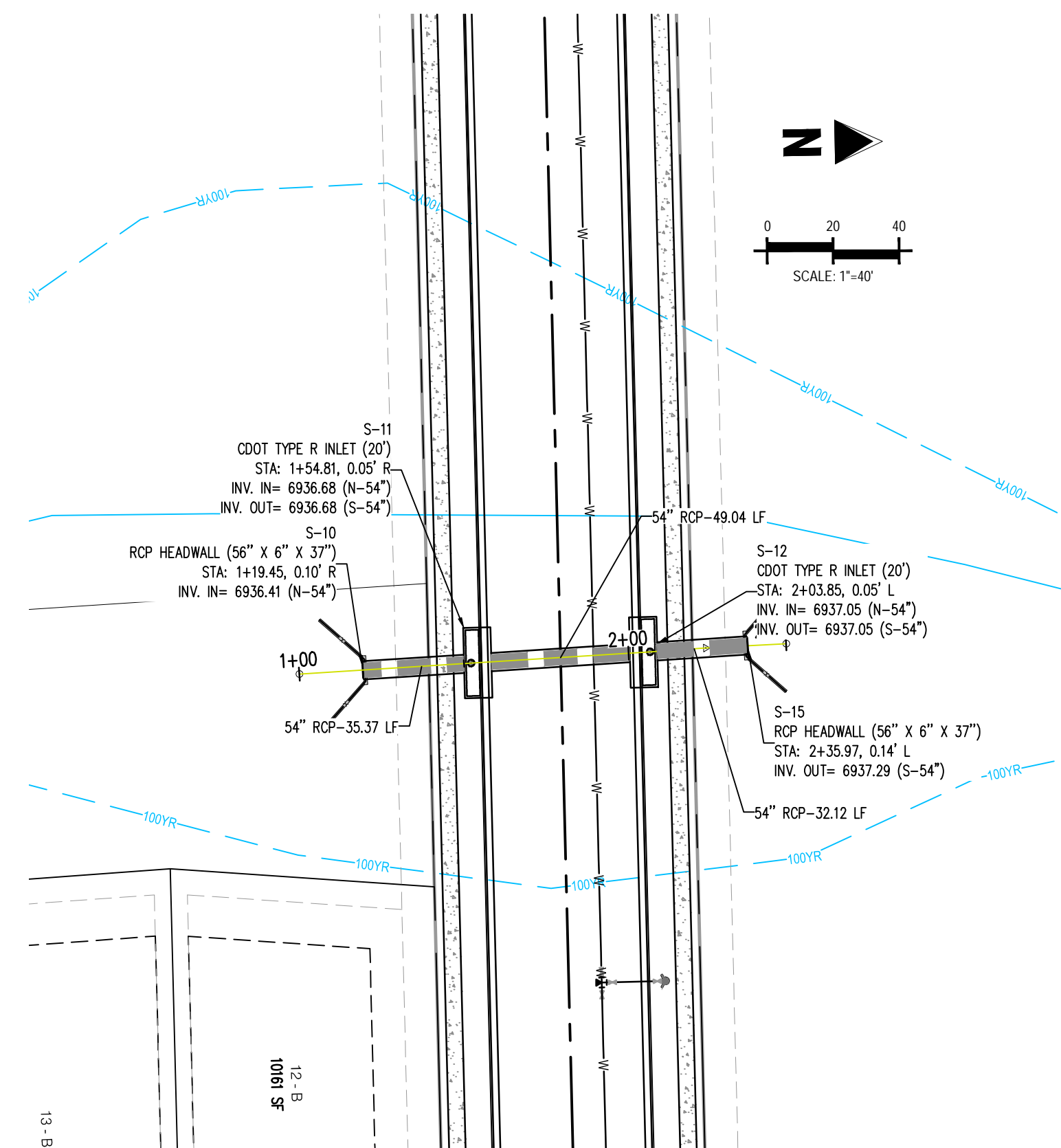
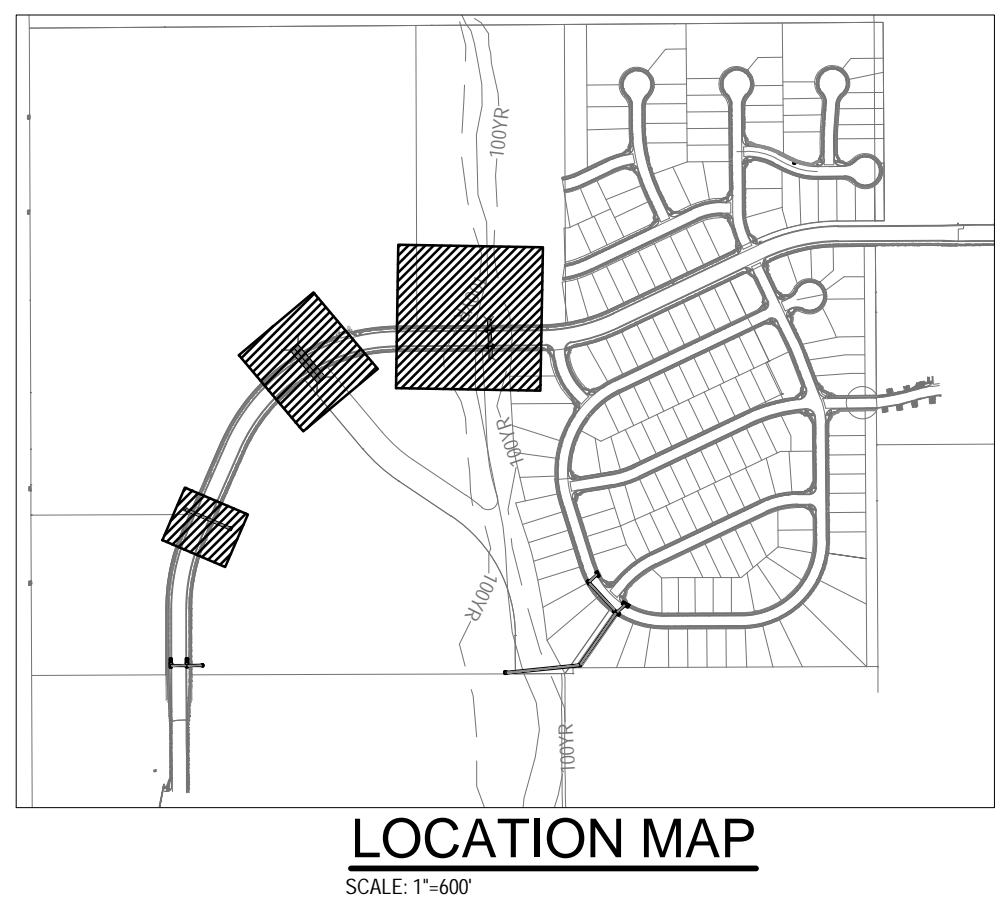
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Project No:	CLH-14.20
Drawn By:	JDP
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Date:	7/29/2019

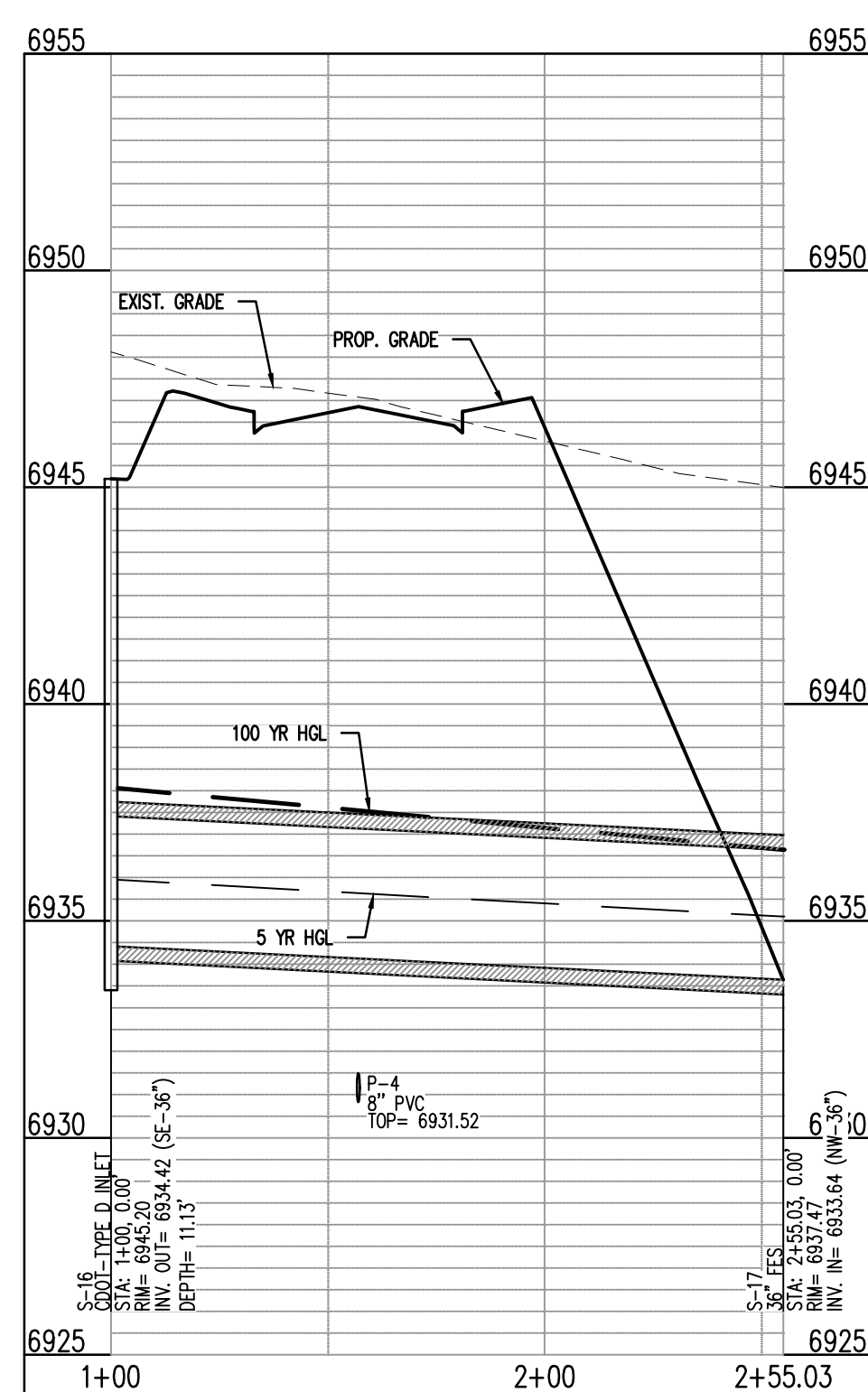
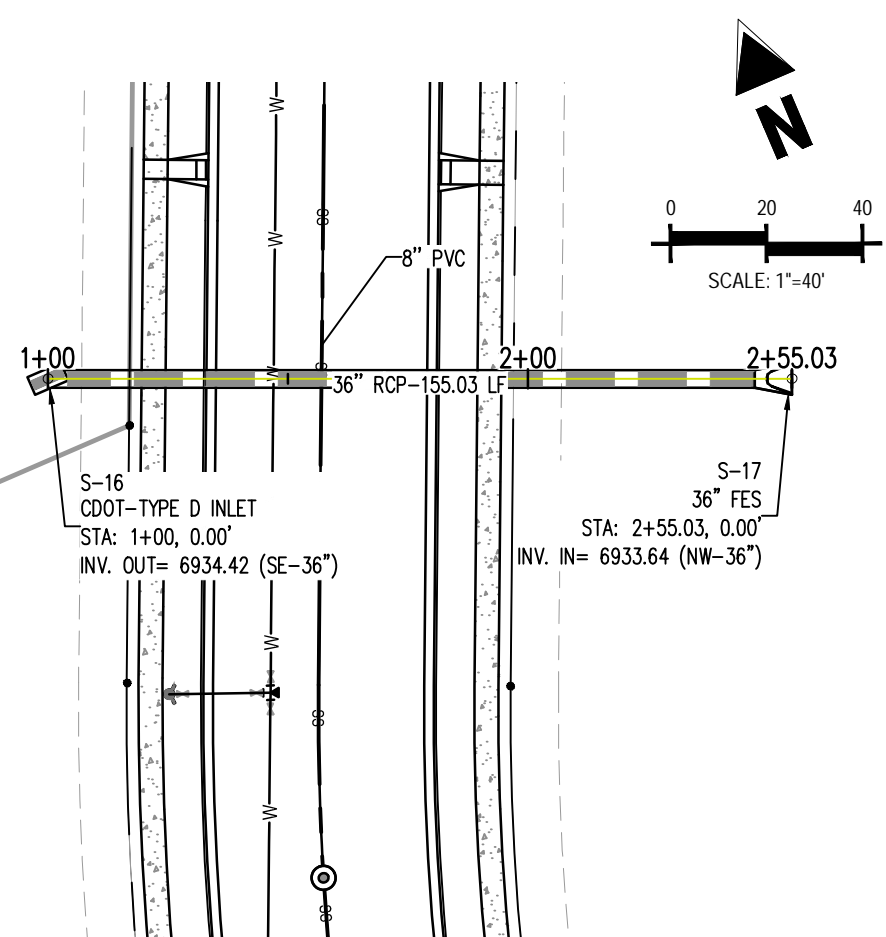
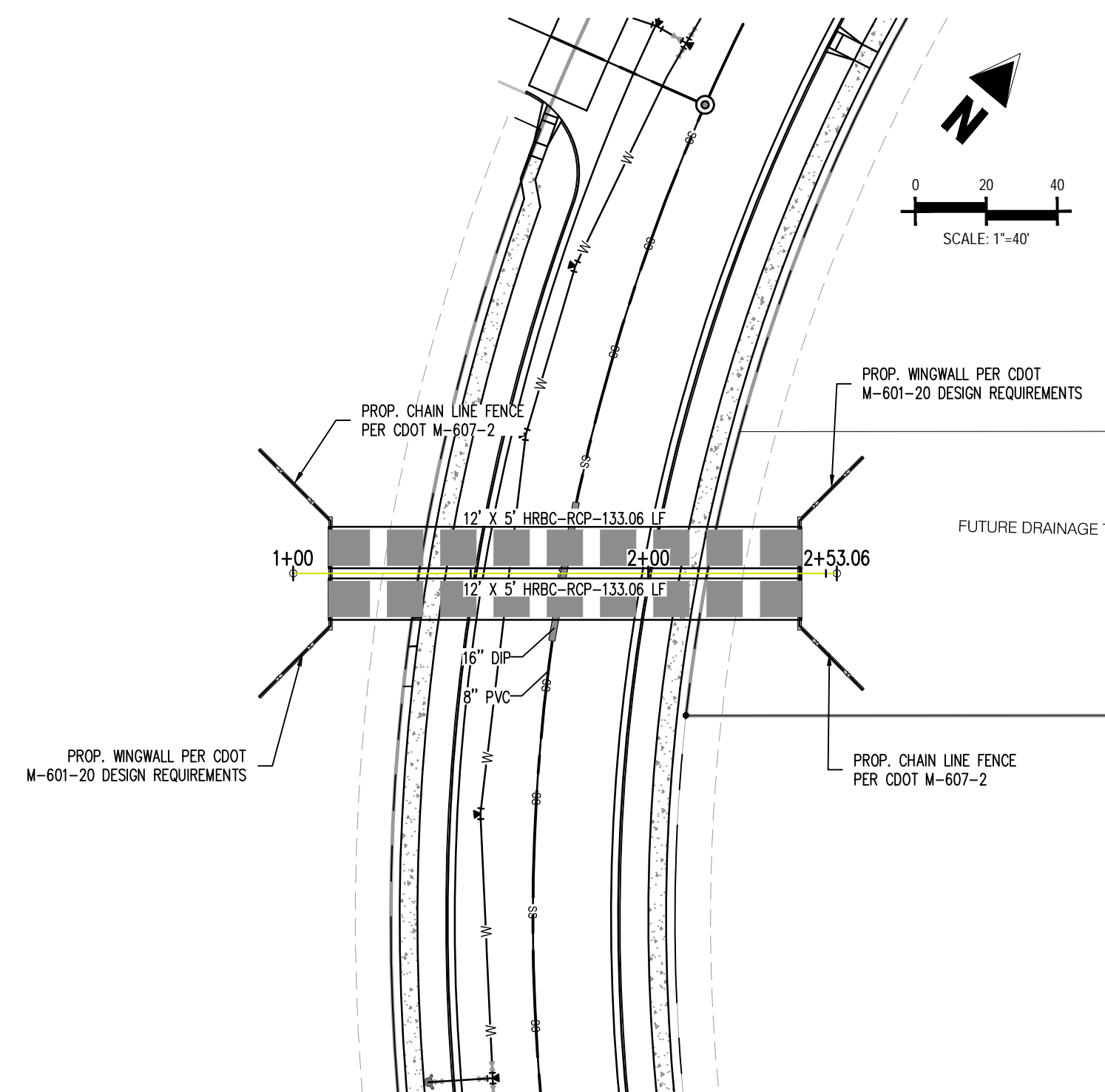
BENT GRASS MEADOWS DRIVE  
STORM PLAN & PROFILE

## C6.01

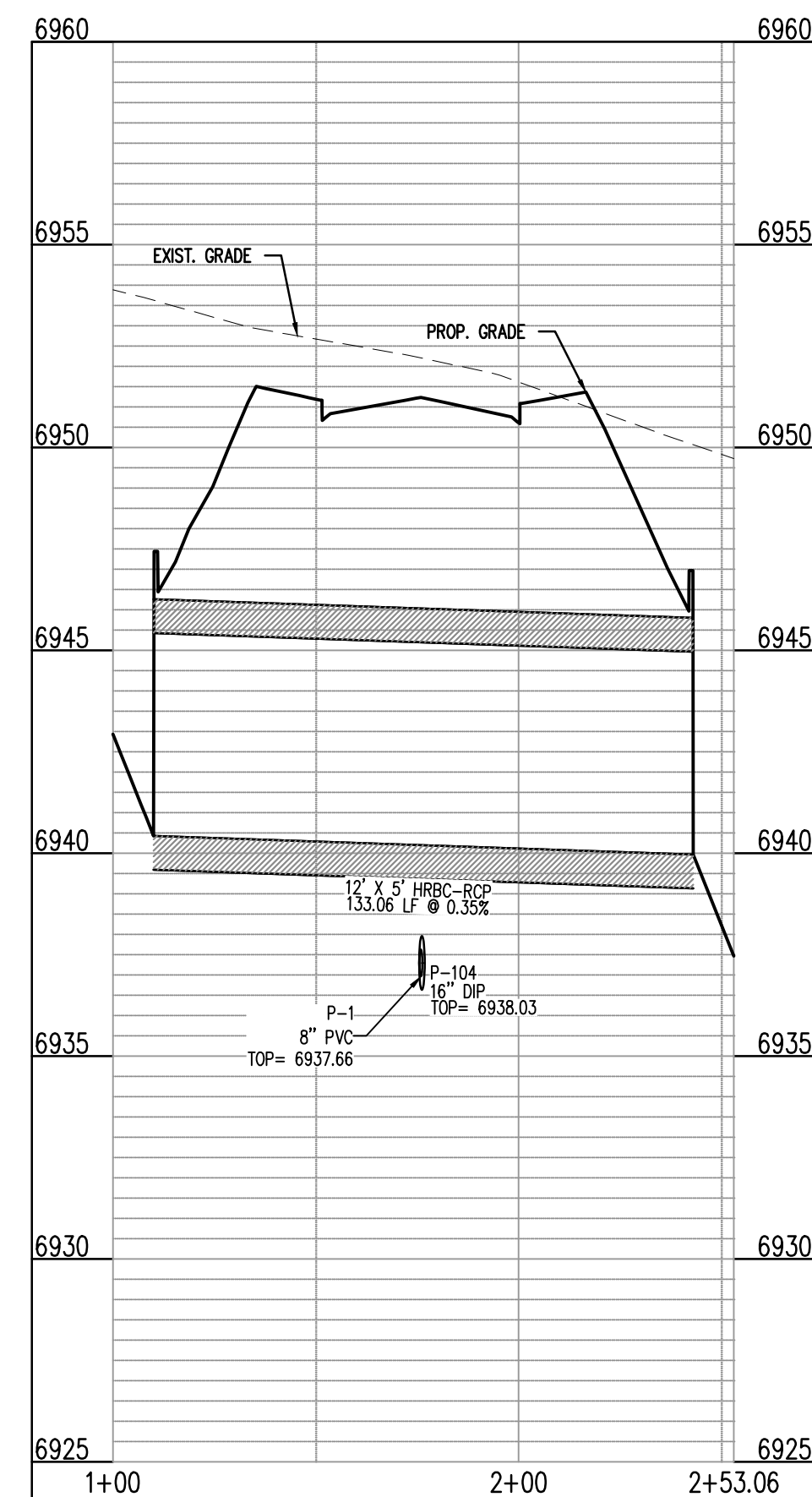
Sheet 28 of 38



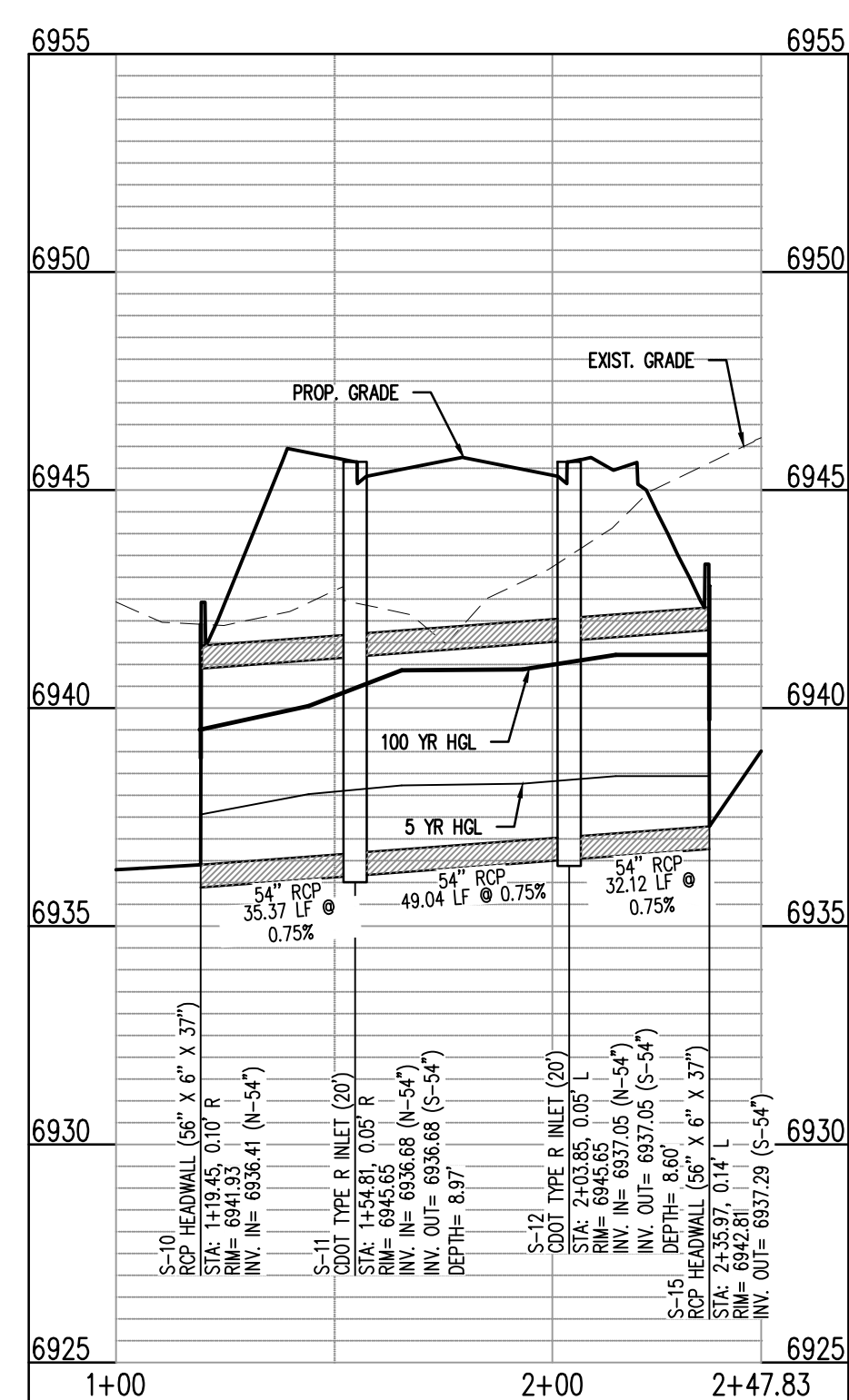
Show the outfall,  
Rip rap dissipater?  
Property lines?  
Where the bottom of the  
channel is?  
etc. ?  
Easements?  
Public or private &  
maintenance entity?



ON-SITE STORM - 5  
STA: 1+00 - 2+55.03  
SCALE: H: 1"=40' V: 1"=10'

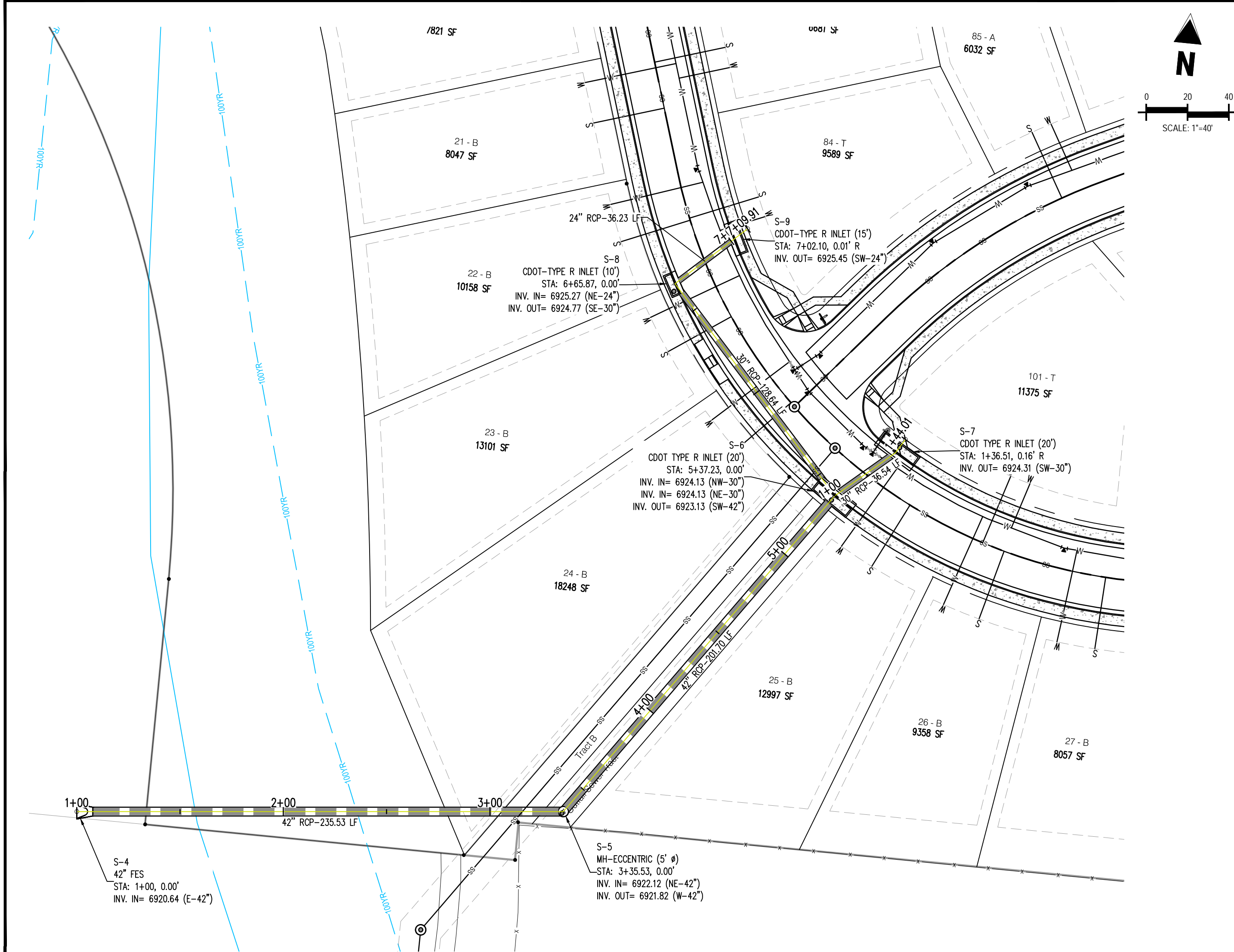


ON-SITE STORM - 6  
STA: 1+00 - 2+53.06  
SCALE: H: 1"=40' V: 1"=10'



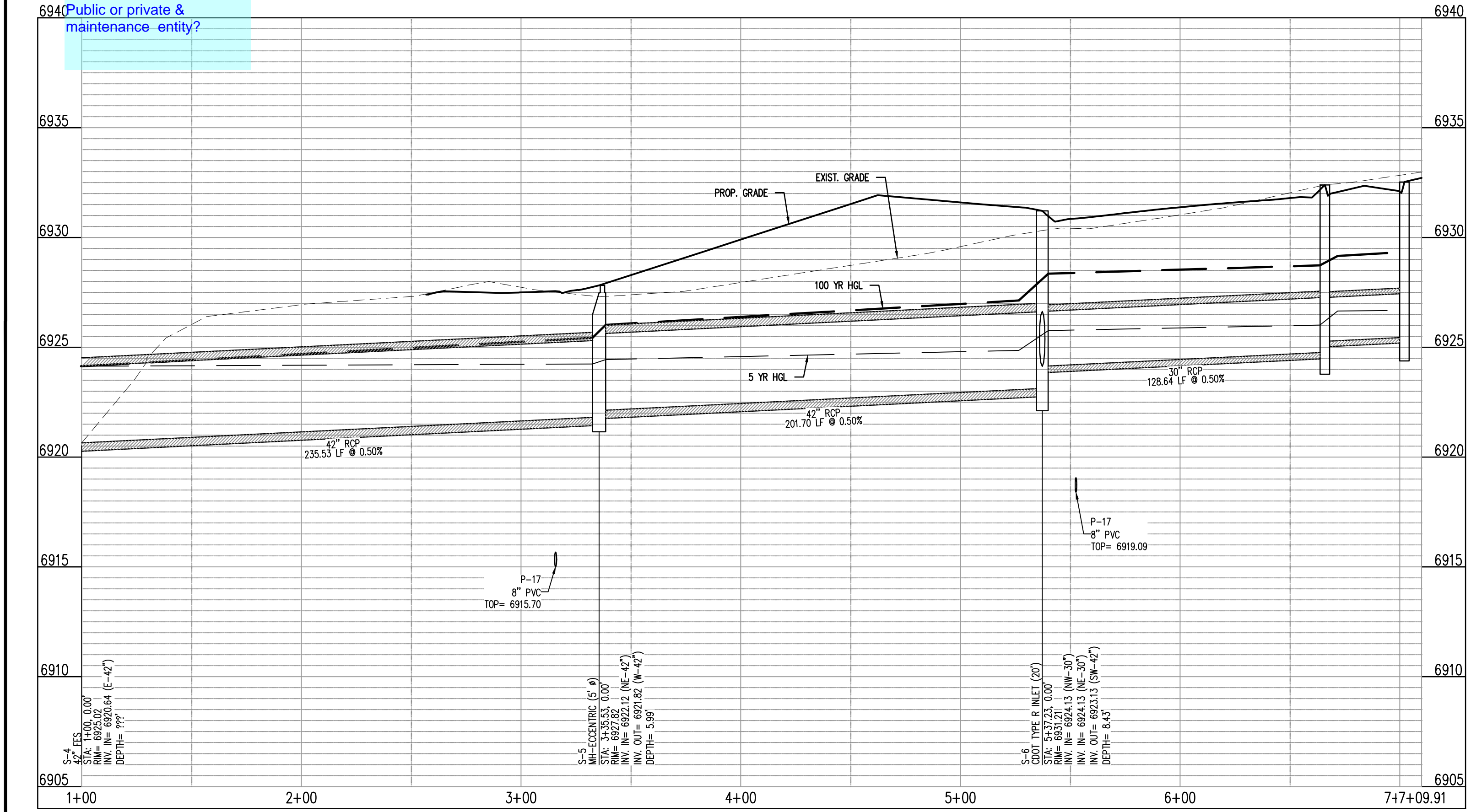
ON-SITE STORM - 4  
STA: 1+00 - 2+47.83  
SCALE: H: 1"=40' V: 1"=10'



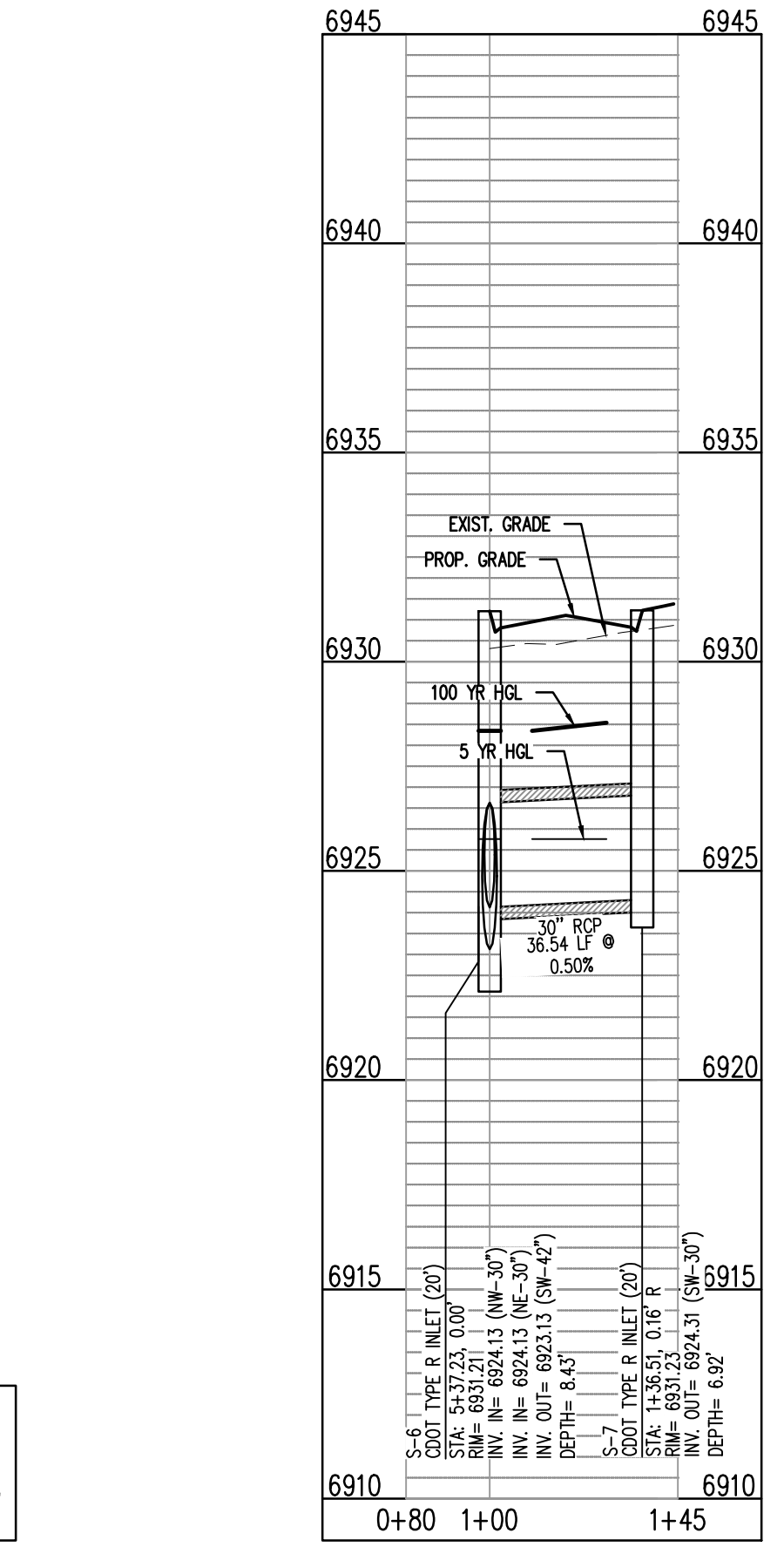
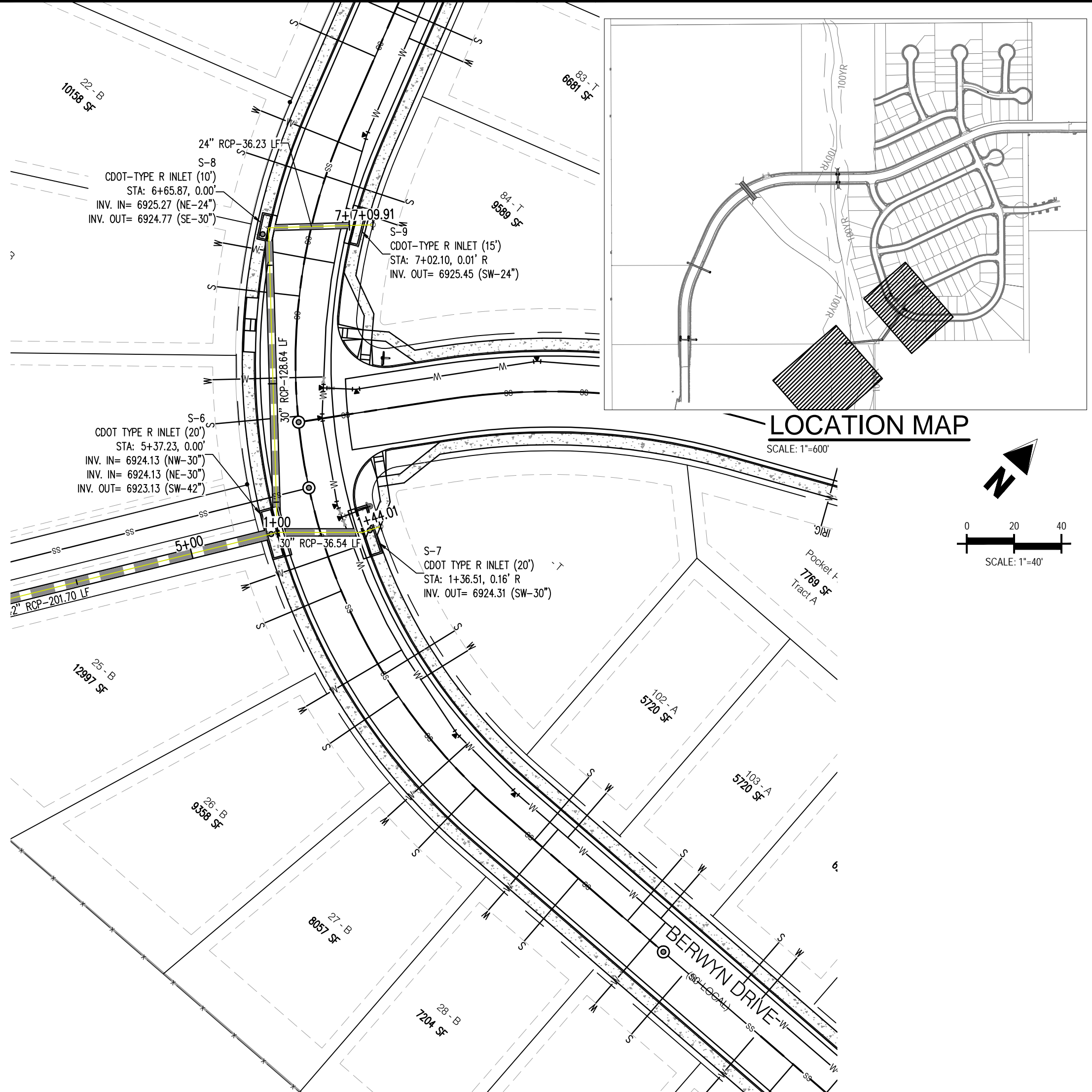


Below is a general comment about all the outfalls into the channel.

Show the outfall, Rip rap dissipater? Property lines? Where the bottom of the channel is? etc. ? Easements? Public or private & maintenance entity?



ON-SITE STORM - 2  
STA: 1+00 - 7+09.91  
SCALE: H: 1"=40' V: 1"=10'



ON-SITE STORM - 3  
STA: 0+80 - 1+45  
SCALE: H: 1"=40' V: 1"=10'



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Project No:	CLH-14-20
Drawn By:	JDP
Checked By:	RGD
Date:	7/29/2019

BERWYN DRIVE  
STORM PLAN & PROFILE





CONSTRUCTION PLANS  
BENT GRASS RESIDENTIAL FILING NO. 2

BENT GRASS MEADOWS DRIVE  
FALCON, CO 80831 EL PASO COUNTY

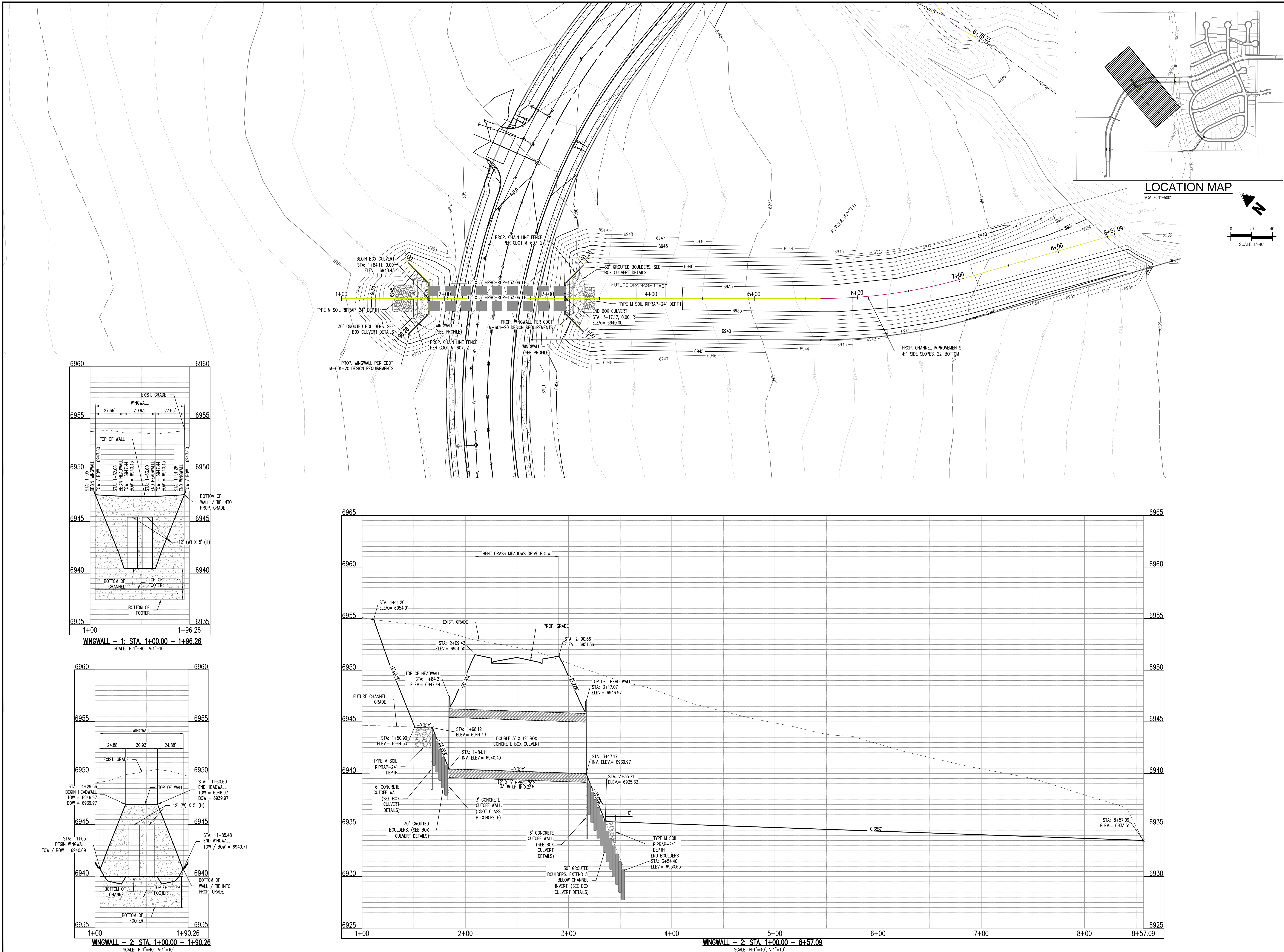
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Project No:	CLH-14-20
Drawn By:	JDP
Checked By:	RGD
Date:	7/29/2019

BOX CULVERT  
PLAN & PROFILE

C6.03

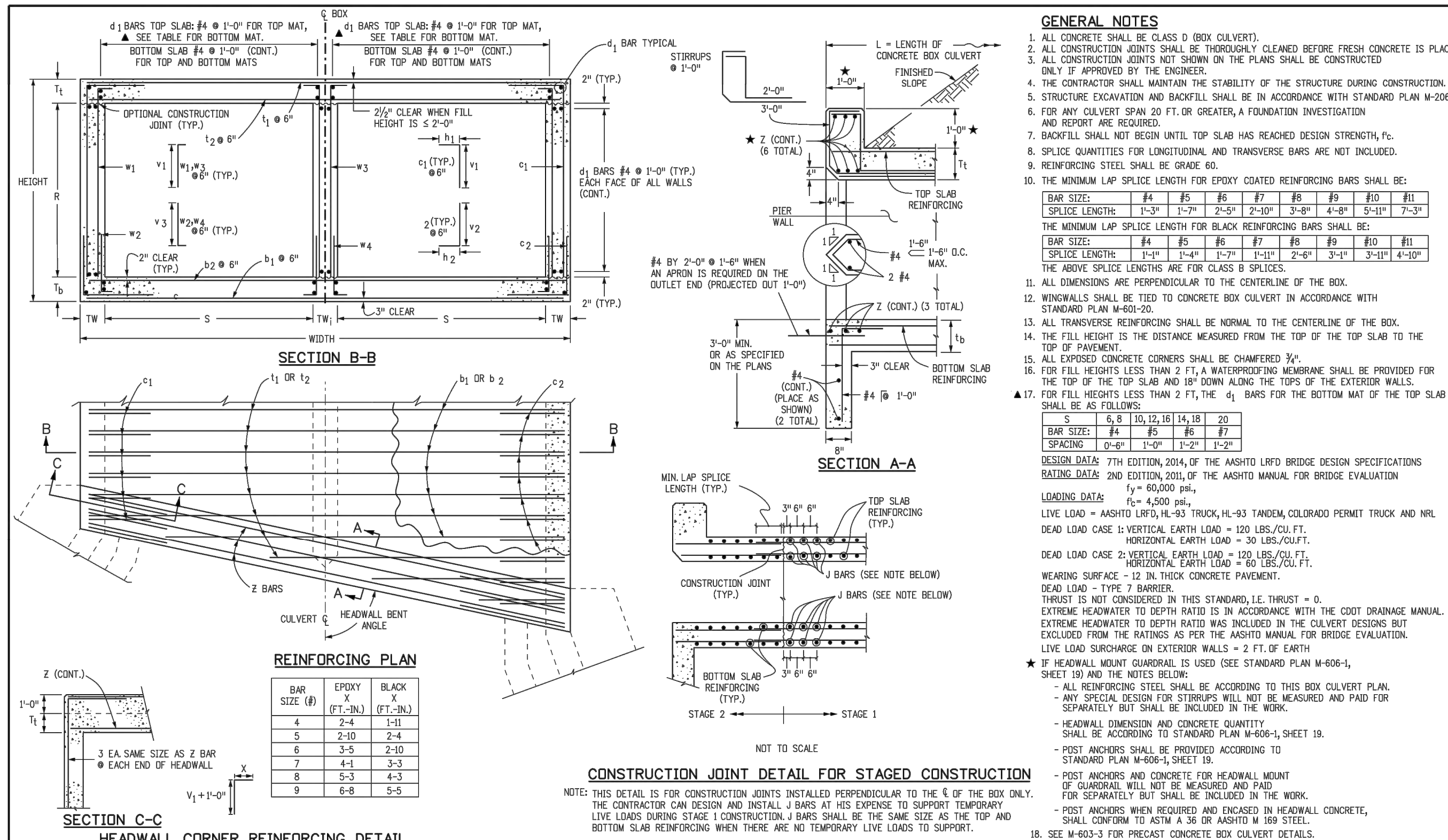
Sheet 30 of 38



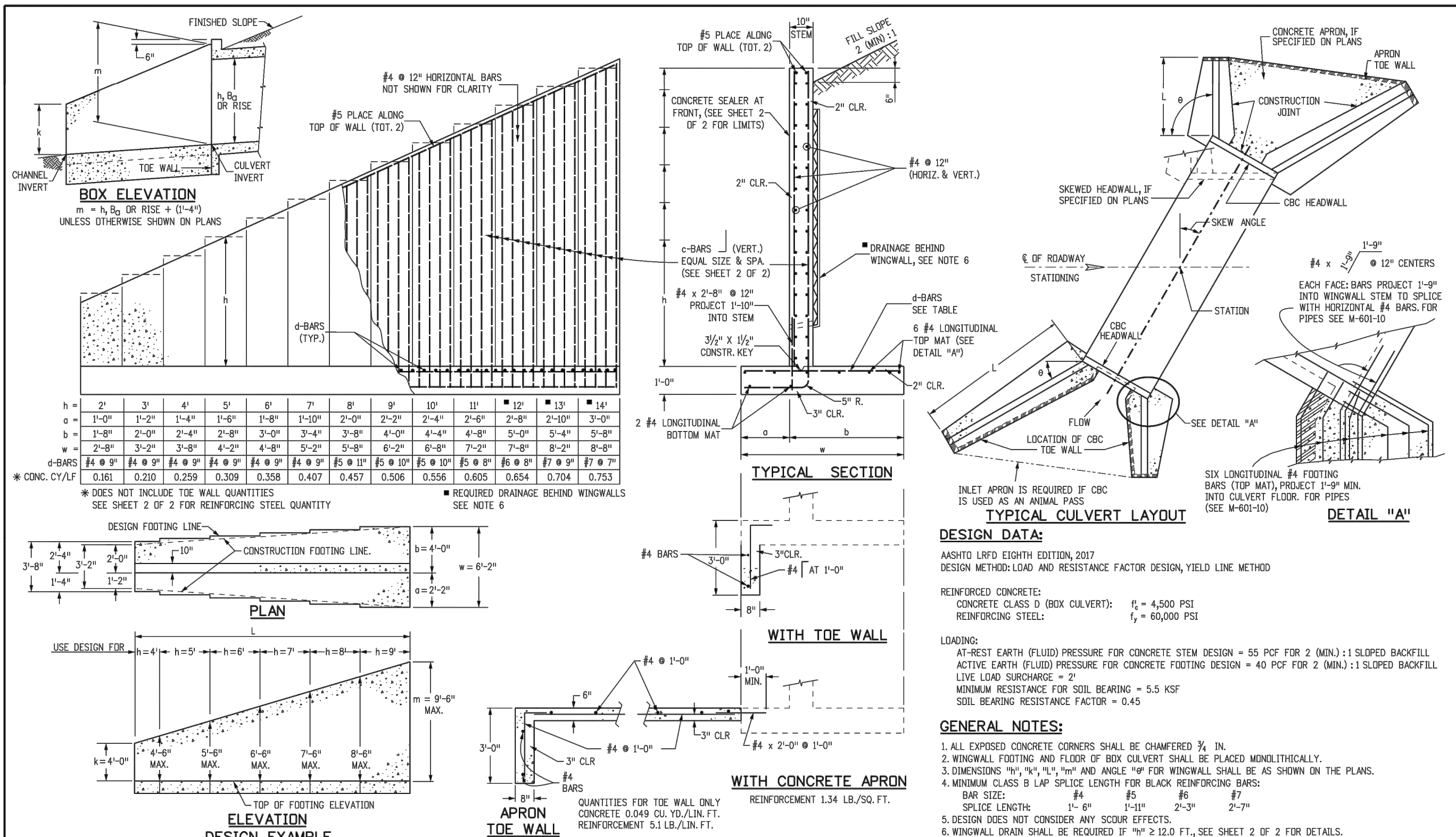




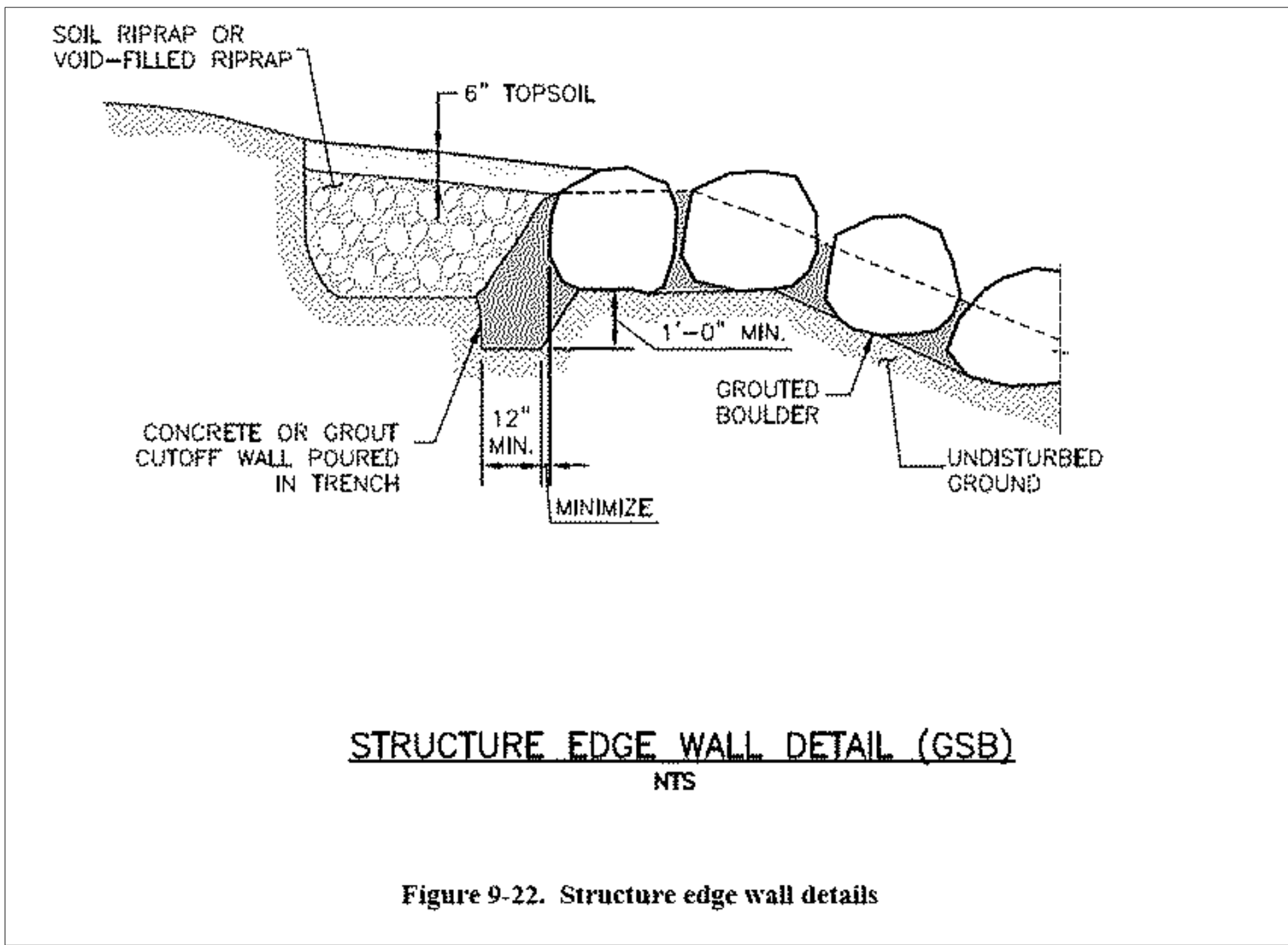
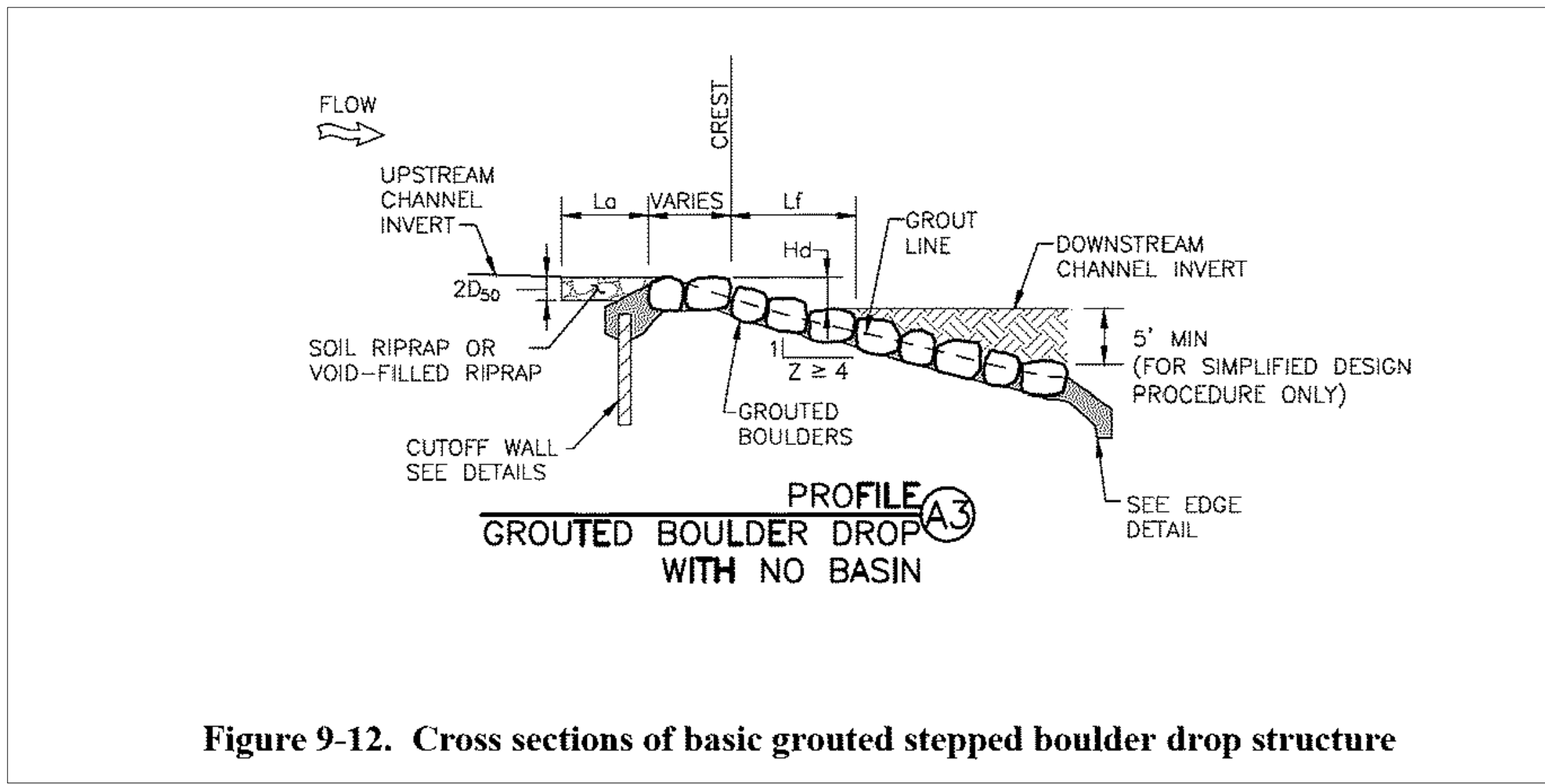
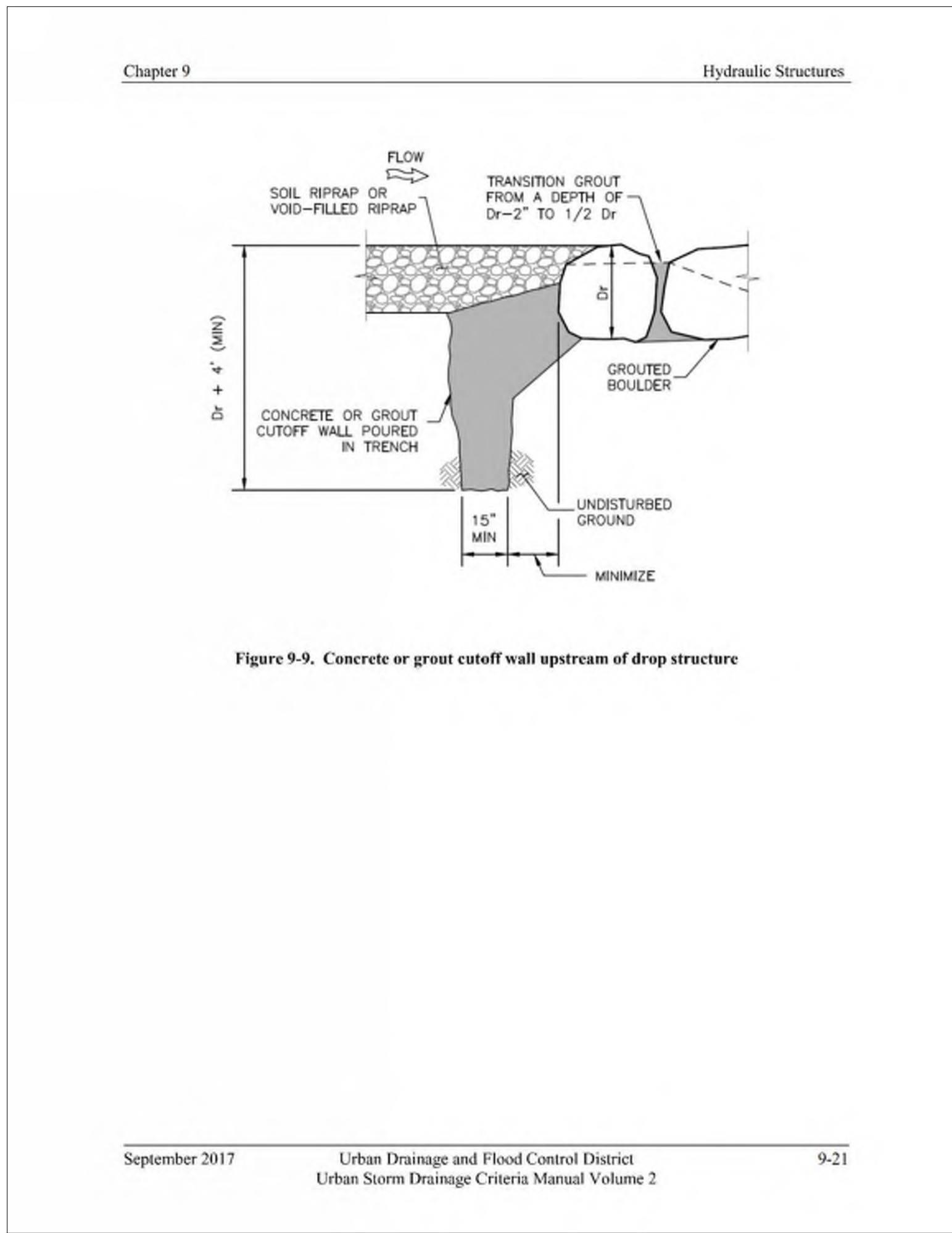
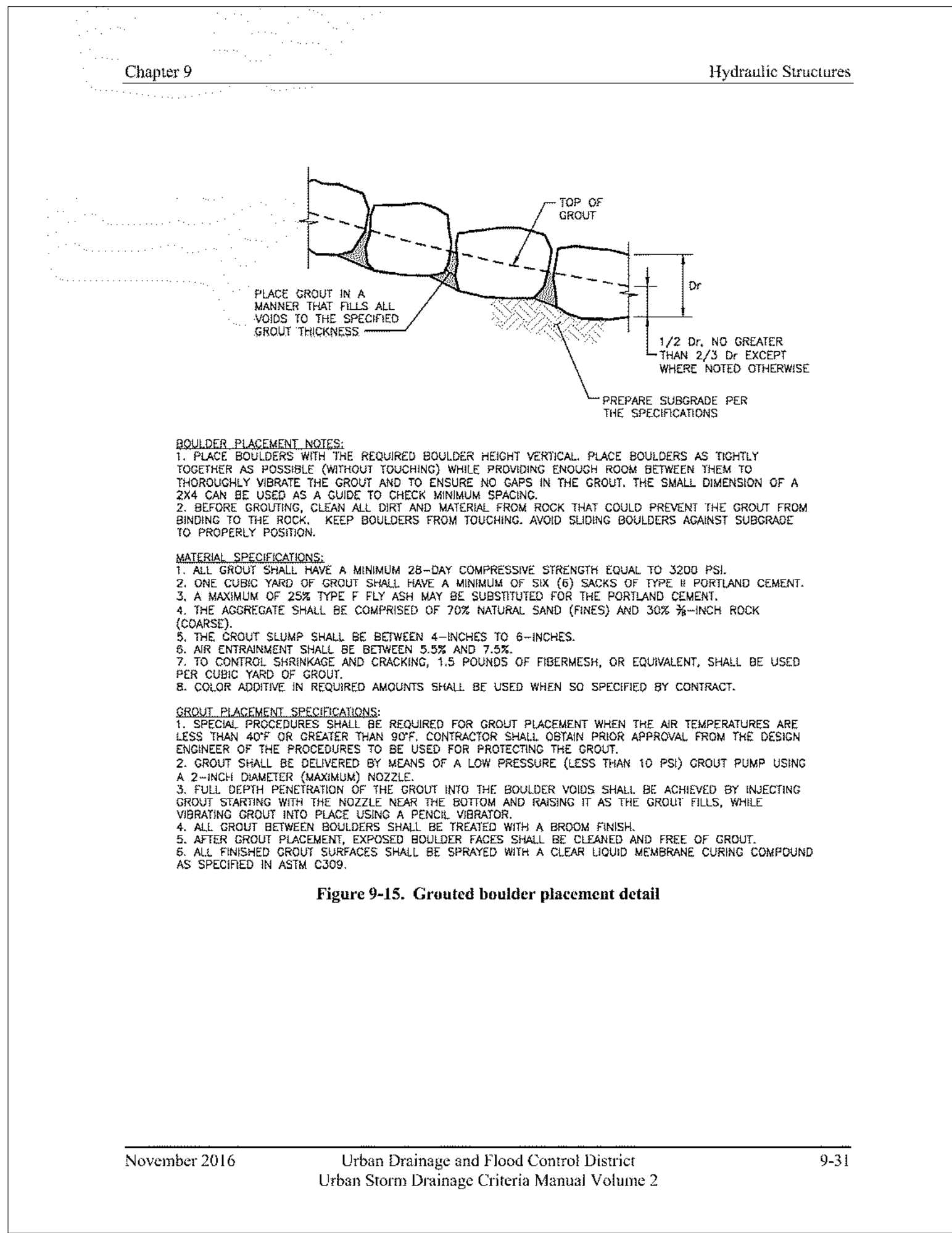
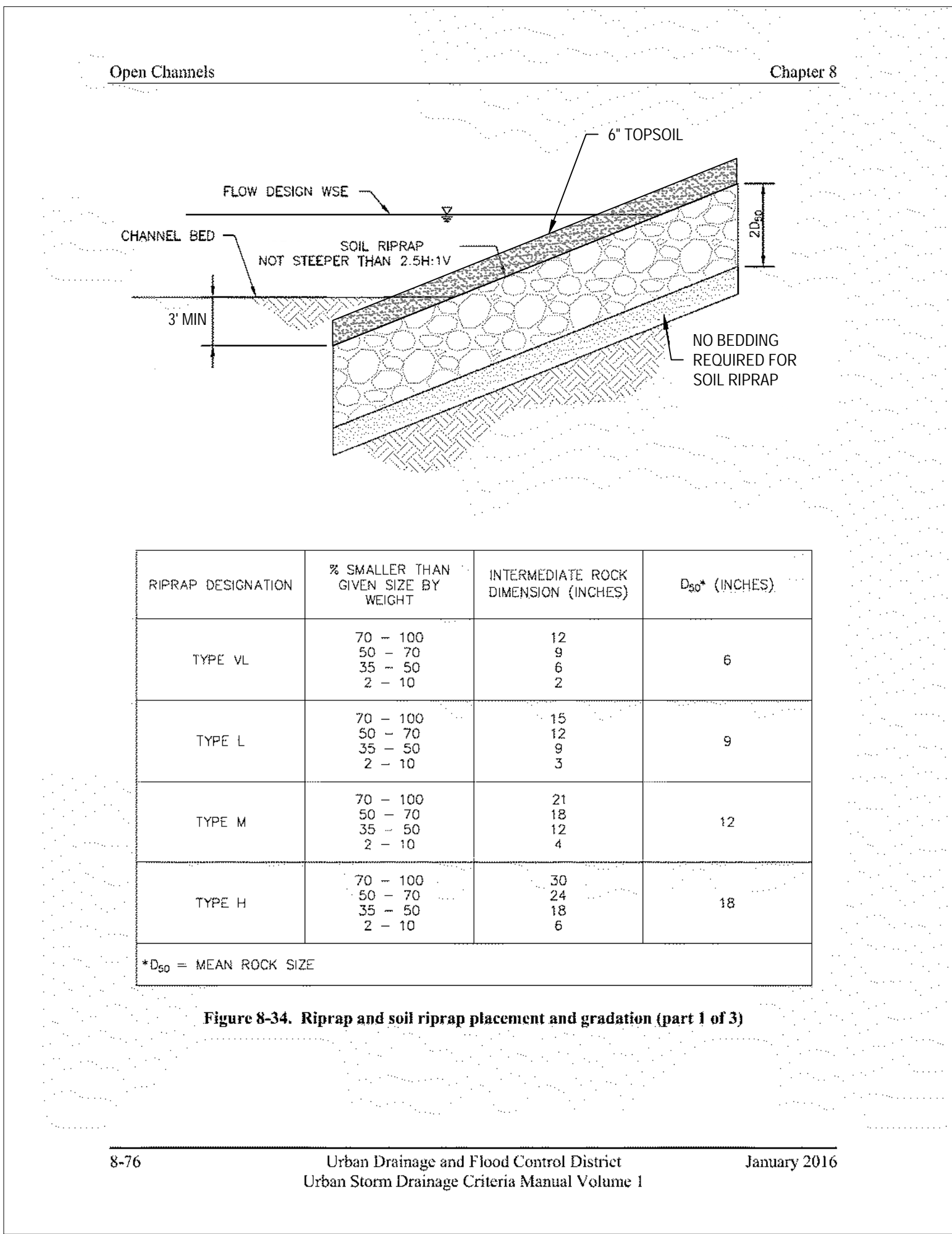




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Creation Date:	07/04/12	Initials:	DDG	Date:	08/27/13	Comments:		2829 West Howard Place											
Last Modification Date:	04/05/19	Initials:	DDG		08/01/13	LRFD Design		CDOT HQ, 3rd Floor											
Full Path:	www.cdott.gov/business/designsupport				04/05/19	Analysis Program Updates		Denver, CO 80204											
Drawing File Name:	6010200202.dgn							Phone: 303-757-9021											
CAD Ver:	MicroStation V8	Scale:	Not to Scale	Units:	English			FAX: 303-757-9868											
Division of Project Support				DDG/Bridge				Division of Project Support				M-601-2				Sheet No. 1 of 2			



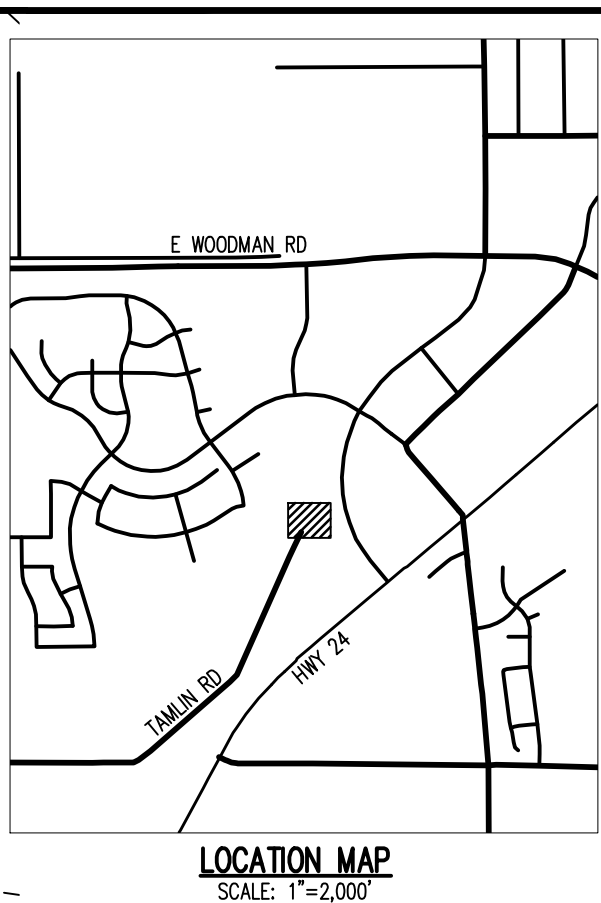
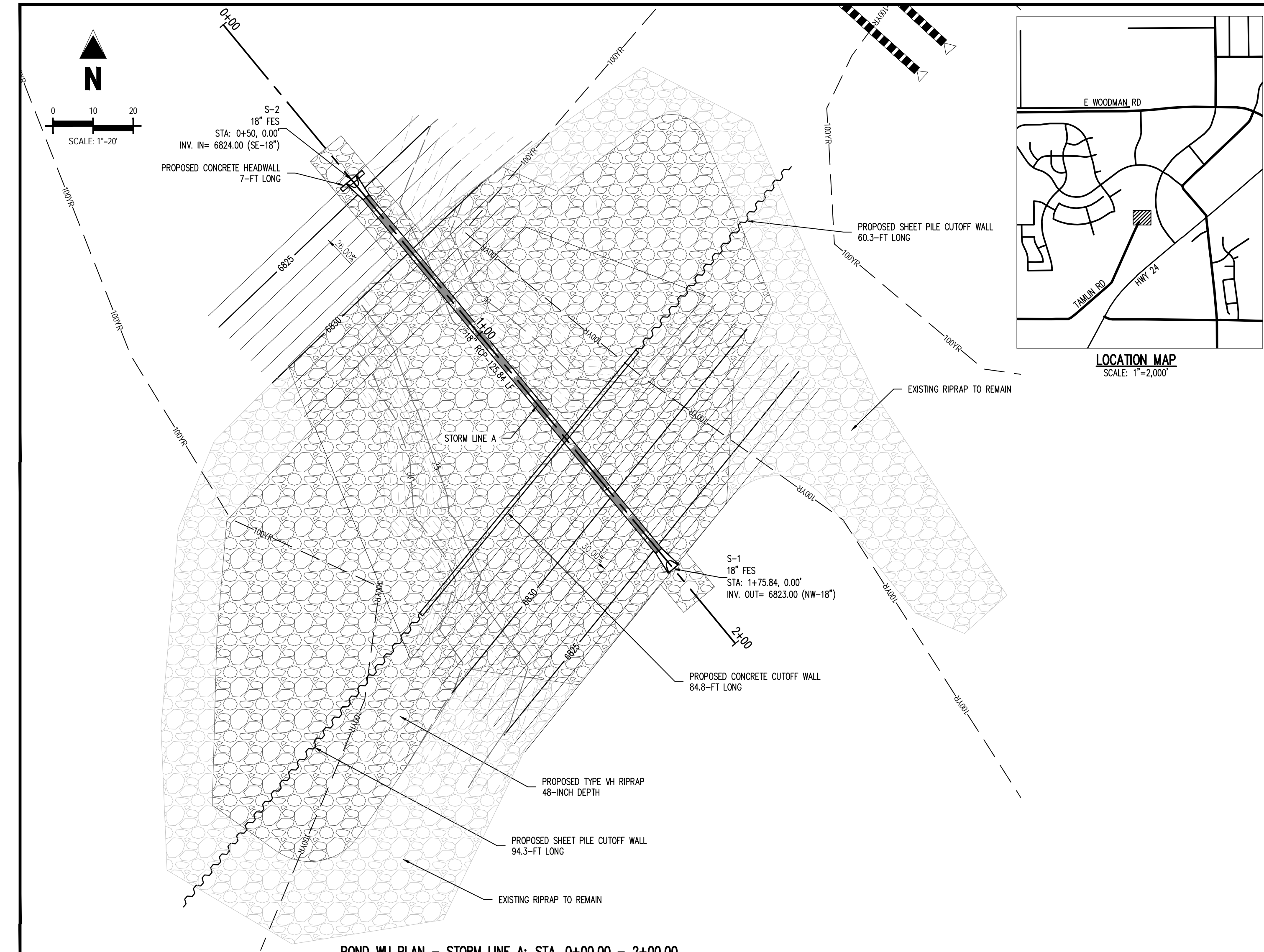




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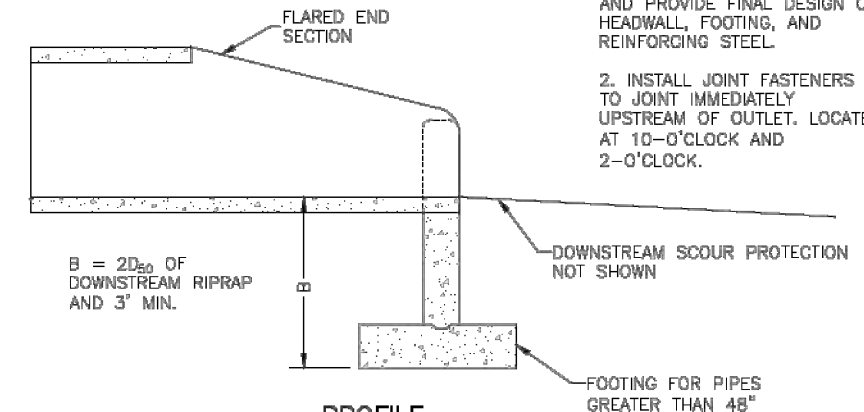
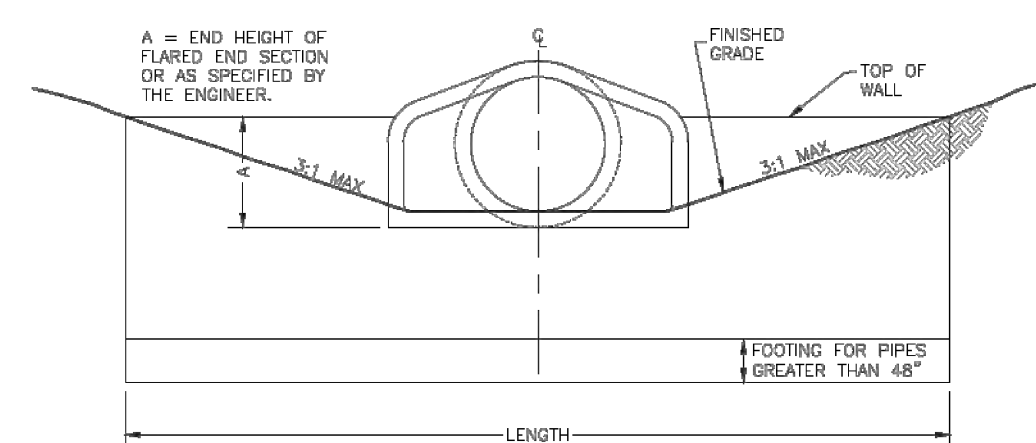
Project No:	CLH-14-20
Drawn By:	JDP
Checked By:	RGD
Date:	7/29/2019





Hydraulic Structures

Chapter 9



HEADWALL DESIGN TABLE

PIPE SIZE	LENGTH, MIN
18"	7'-0"
24"	8'-0"
30"	10'-0"
36"	12'-0"
42"	13'-0"
48"	17'-0"
54"	19'-0"
60"	21'-0"
66"	22'-0"
72"	24'-0"

FLARED END SECTION (FES) HEADWALL DETAIL

Figure 9-29. Flared end section (FES) headwall concept

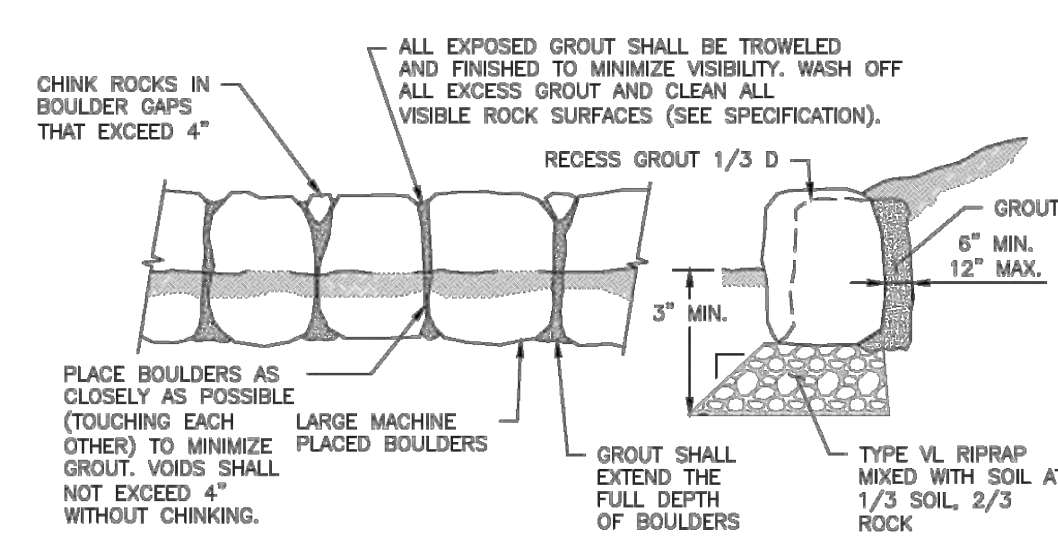
9-62

Urban Drainage and Flood Control District  
Urban Storm Drainage Criteria Manual Volume 2

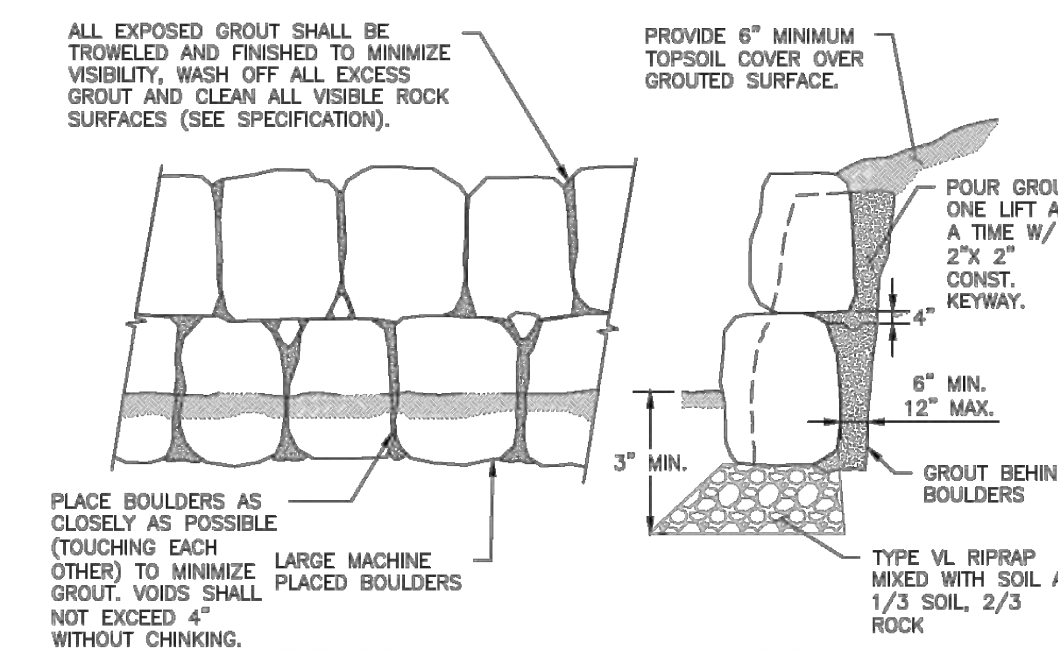
November 2016

Open Channels

Chapter 8



GRouted BOULDER EDGE DETAIL



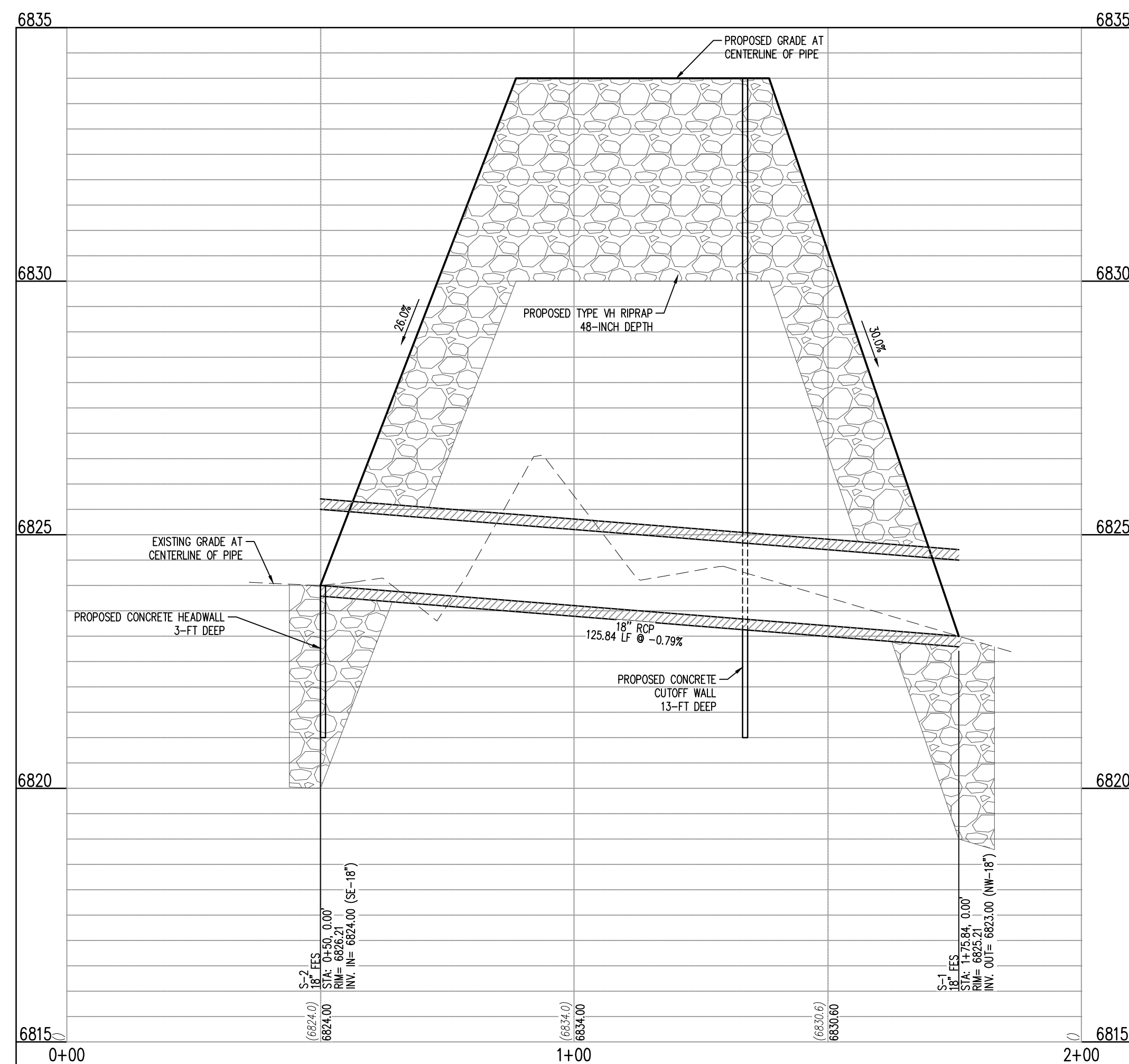
GRouted BOULDER STACKED WALL EDGE

Figure 8-36. Sample grouted boulder section

8-82

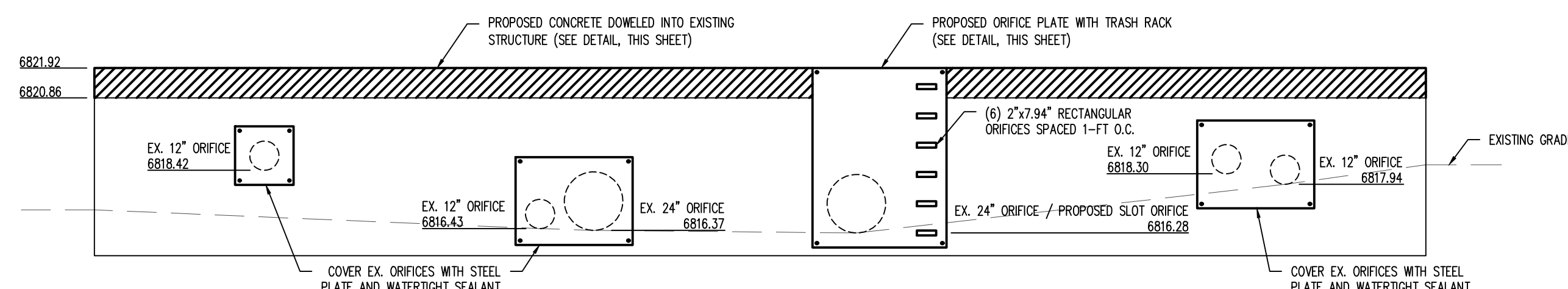
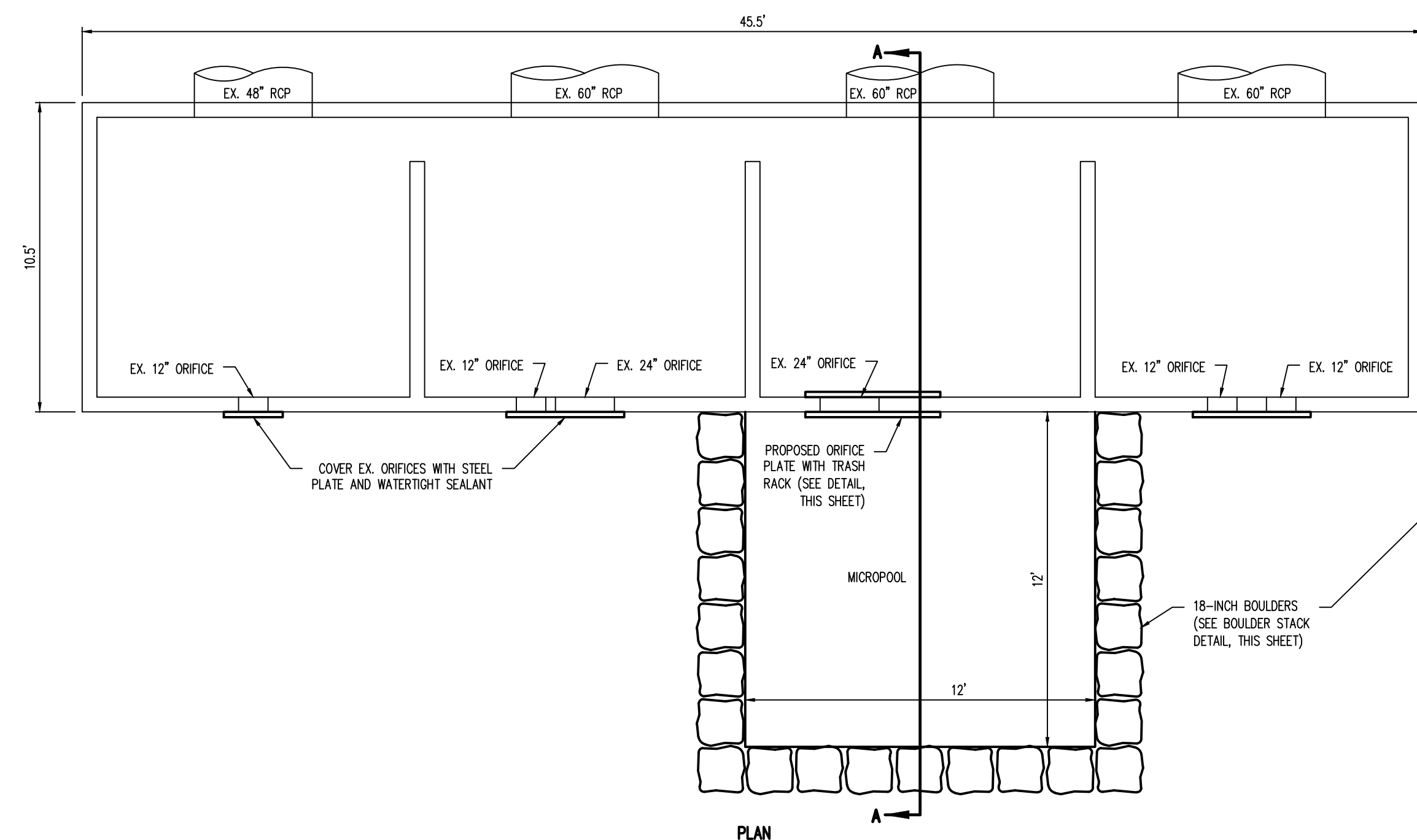
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Urban Storm Drainage Criteria Manual Volume 1

January 2016



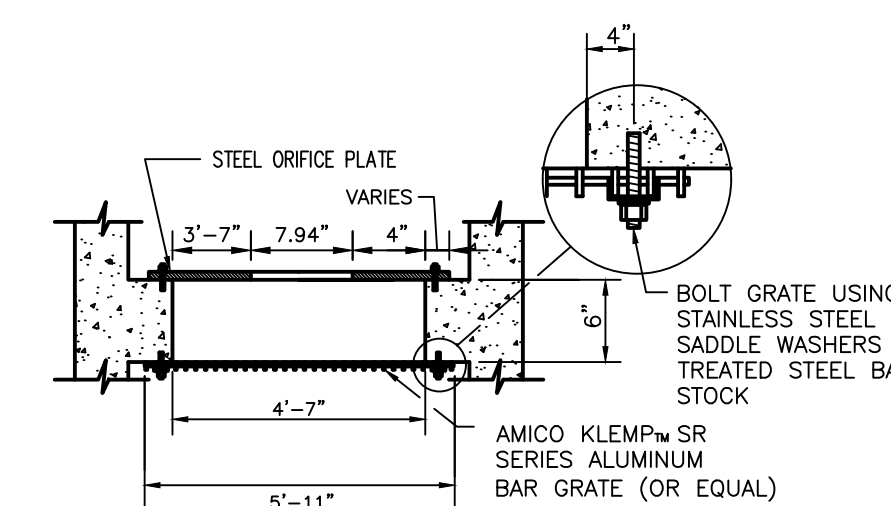
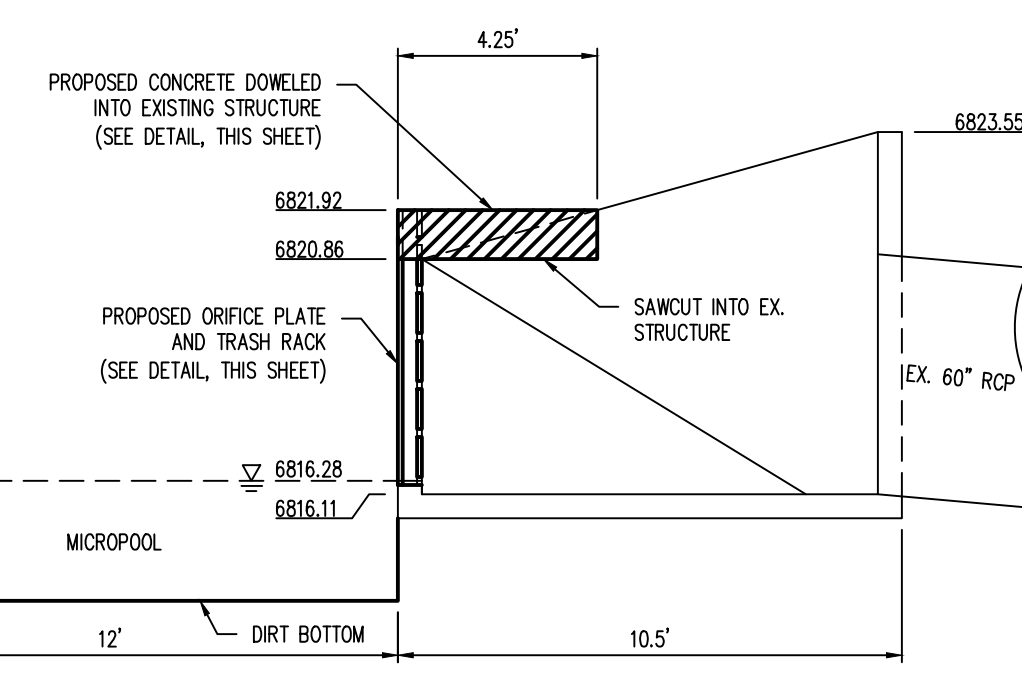
POND WU PROFILE - STORM LINE A: STA. 0+00.00 - 2+00.00

SCALE: H:1"=20', V:1"=10'



POND WU OUTLET STRUCTURE MODIFICATION DETAIL

NOT TO SCALE



Galloway

1755 Telstar Drive, Suite 107  
Colorado Springs, CO 80920  
719.900.7220  
gallowayus.com

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CONSTRUCTION PLANS  
BENT GRASS RESIDENTIAL FILING NO. 2

BENT GRASS MEADOWS DRIVE  
FALCON, CO 80831 EL PASO COUNTY

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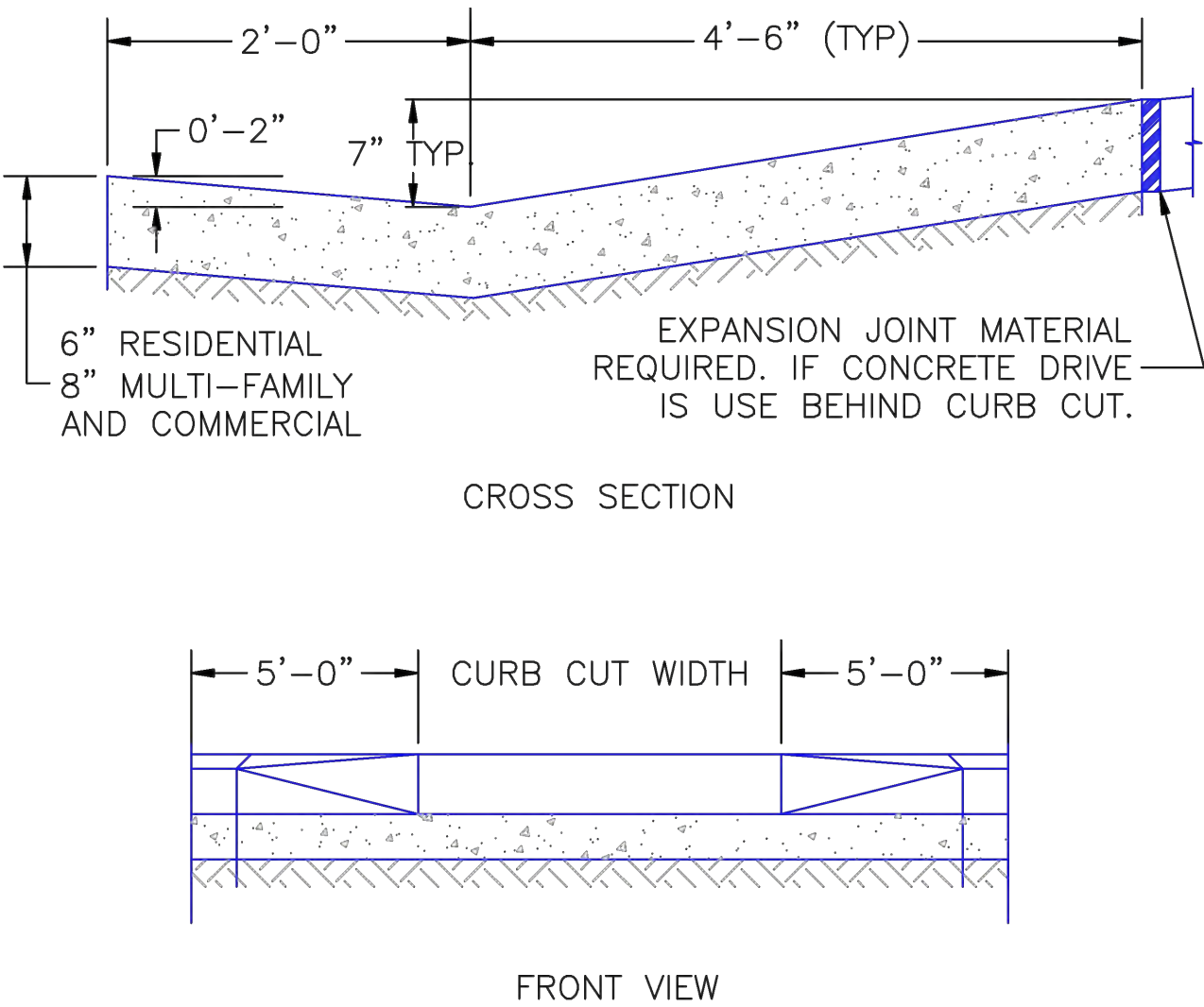
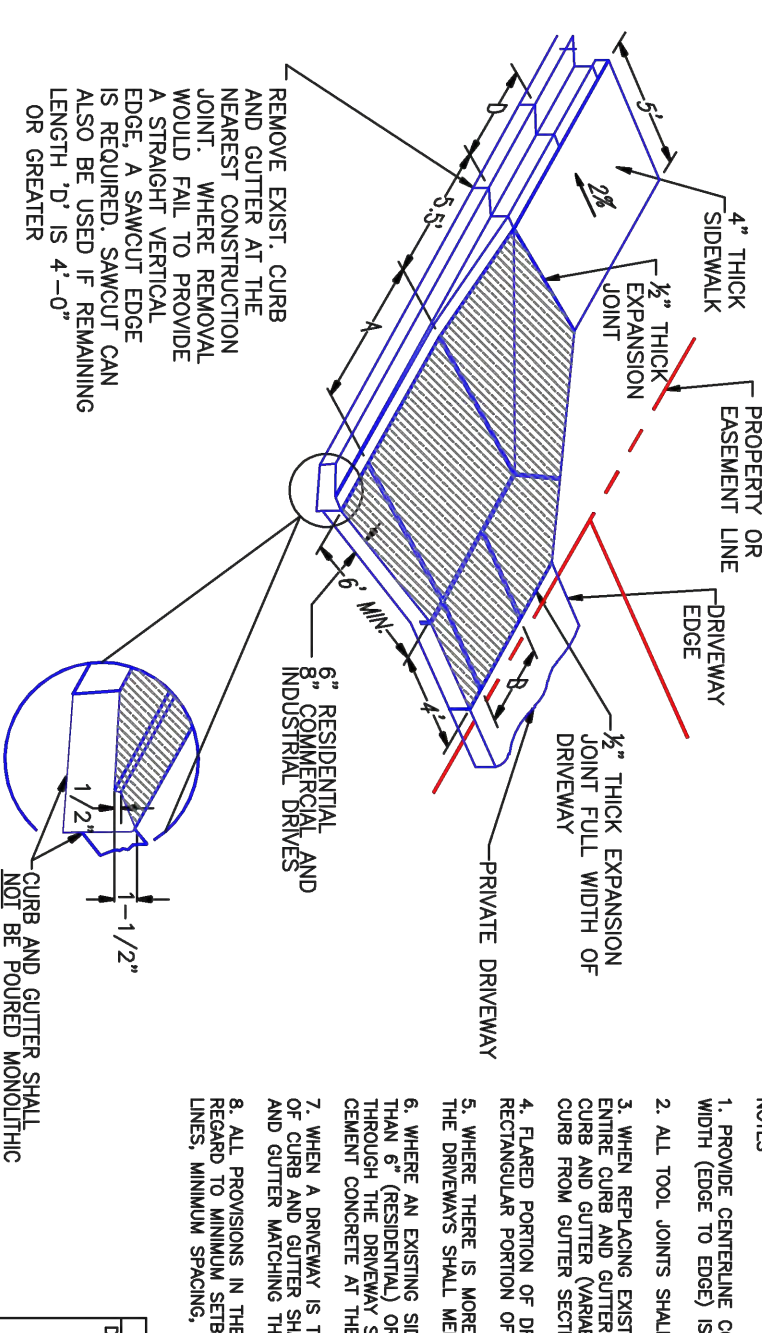
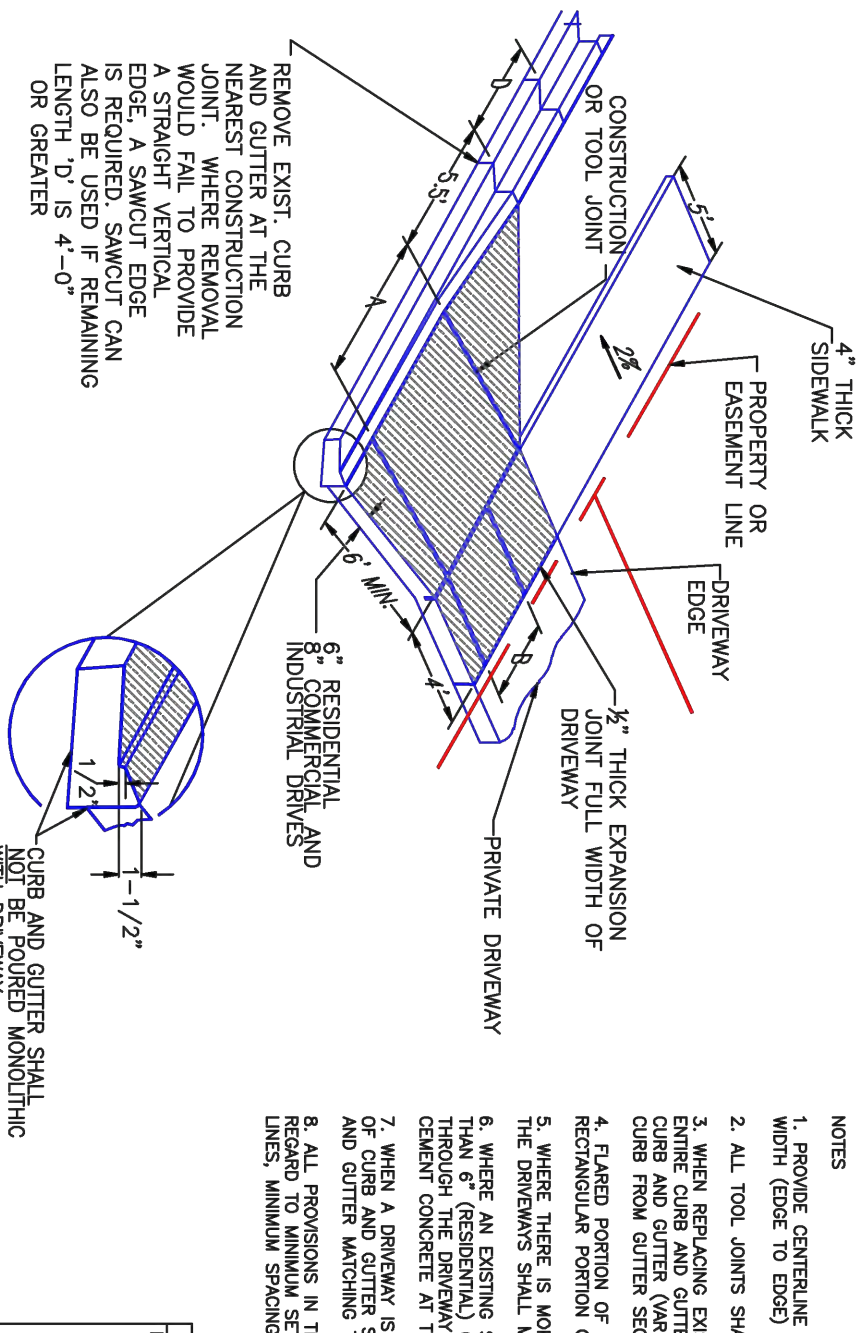
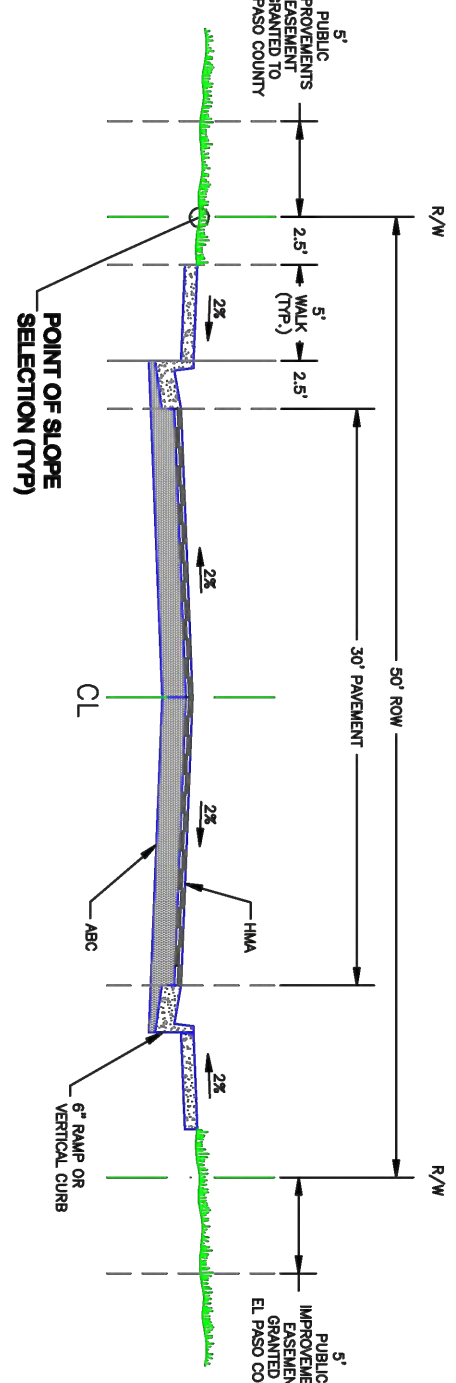
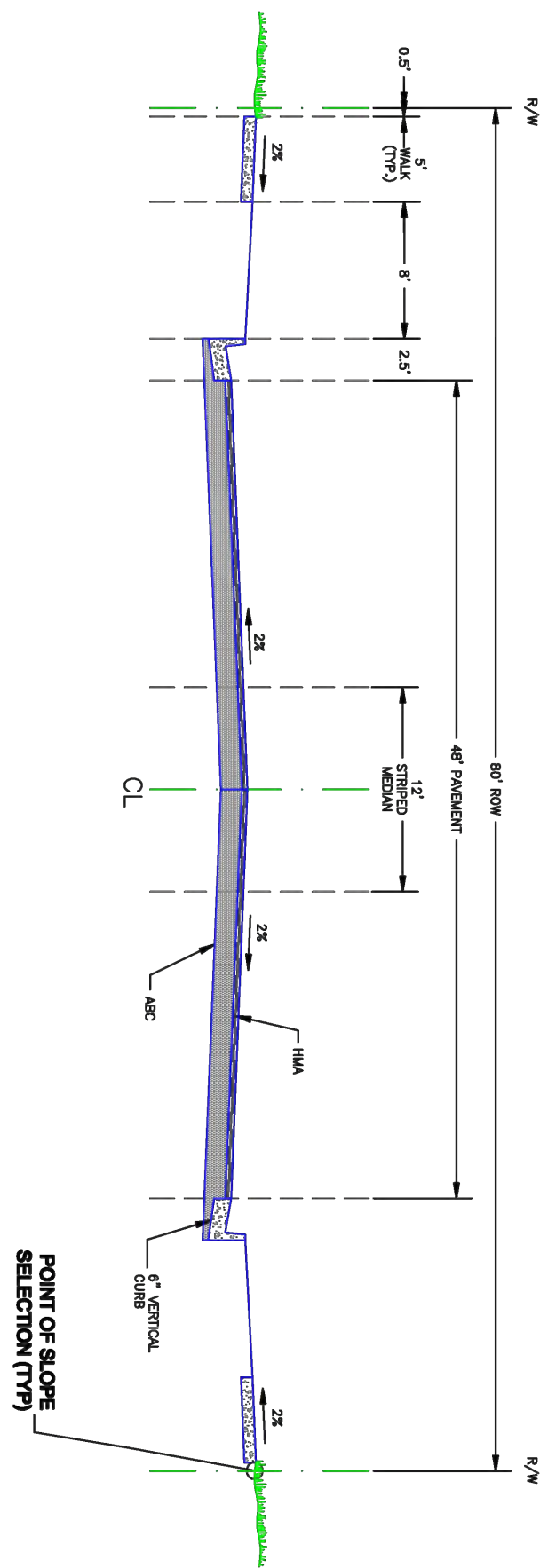
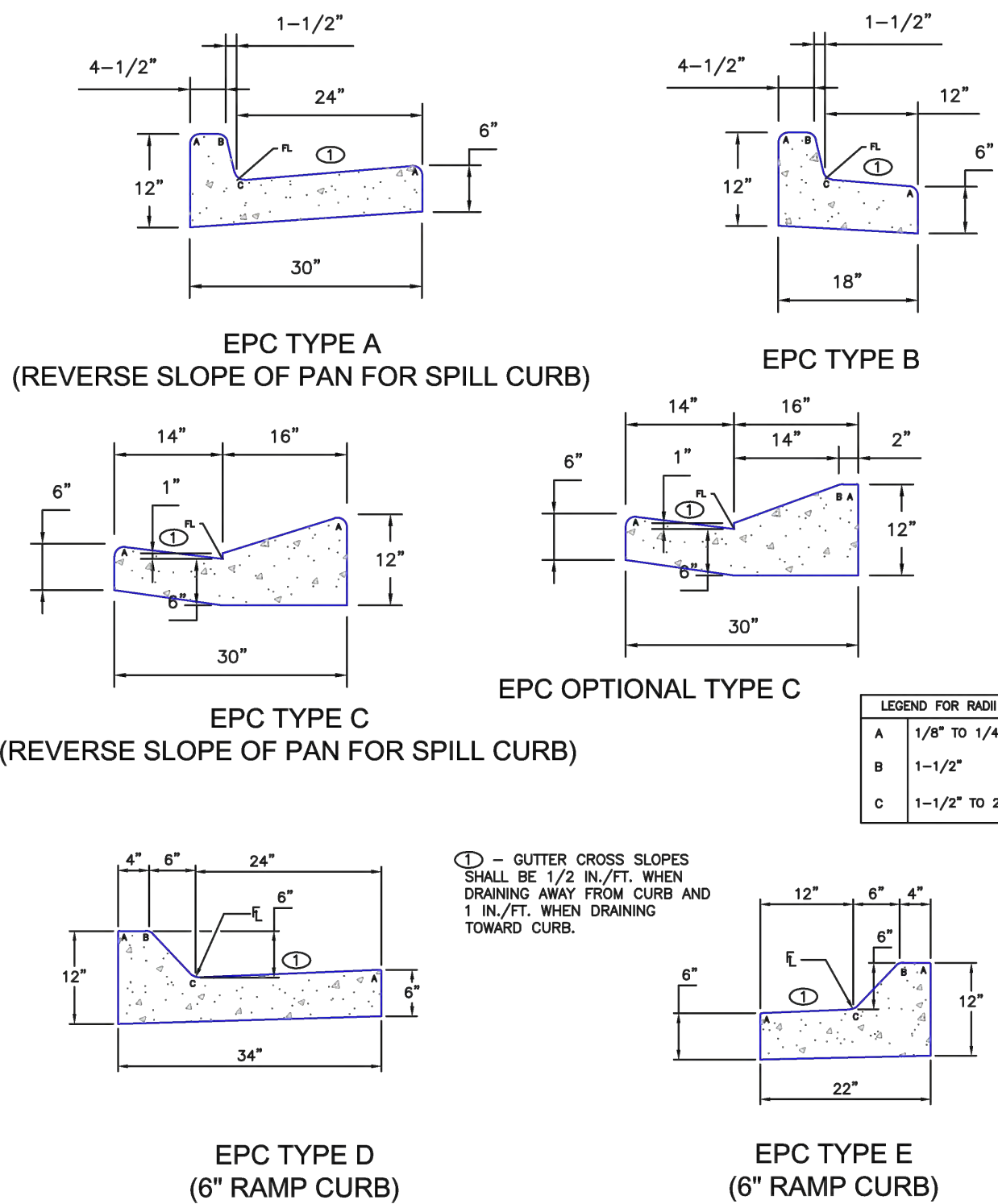
Project No: CLH-14.20  
Drawn By: JDP  
Checked By: RGD  
Date: 7/29/2019

POND MODIFICATION PLAN

C6.07

Sheet 34 of 38







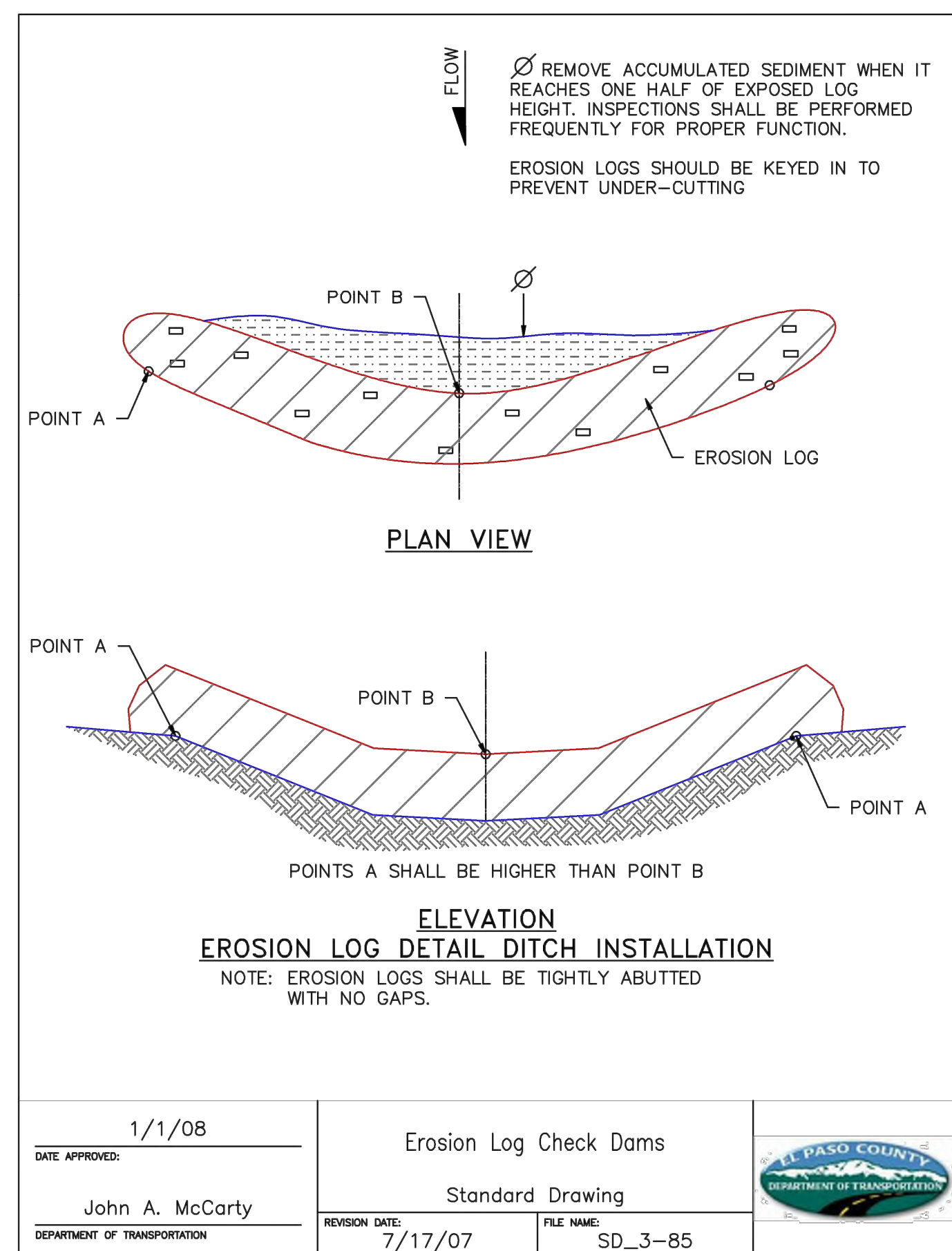
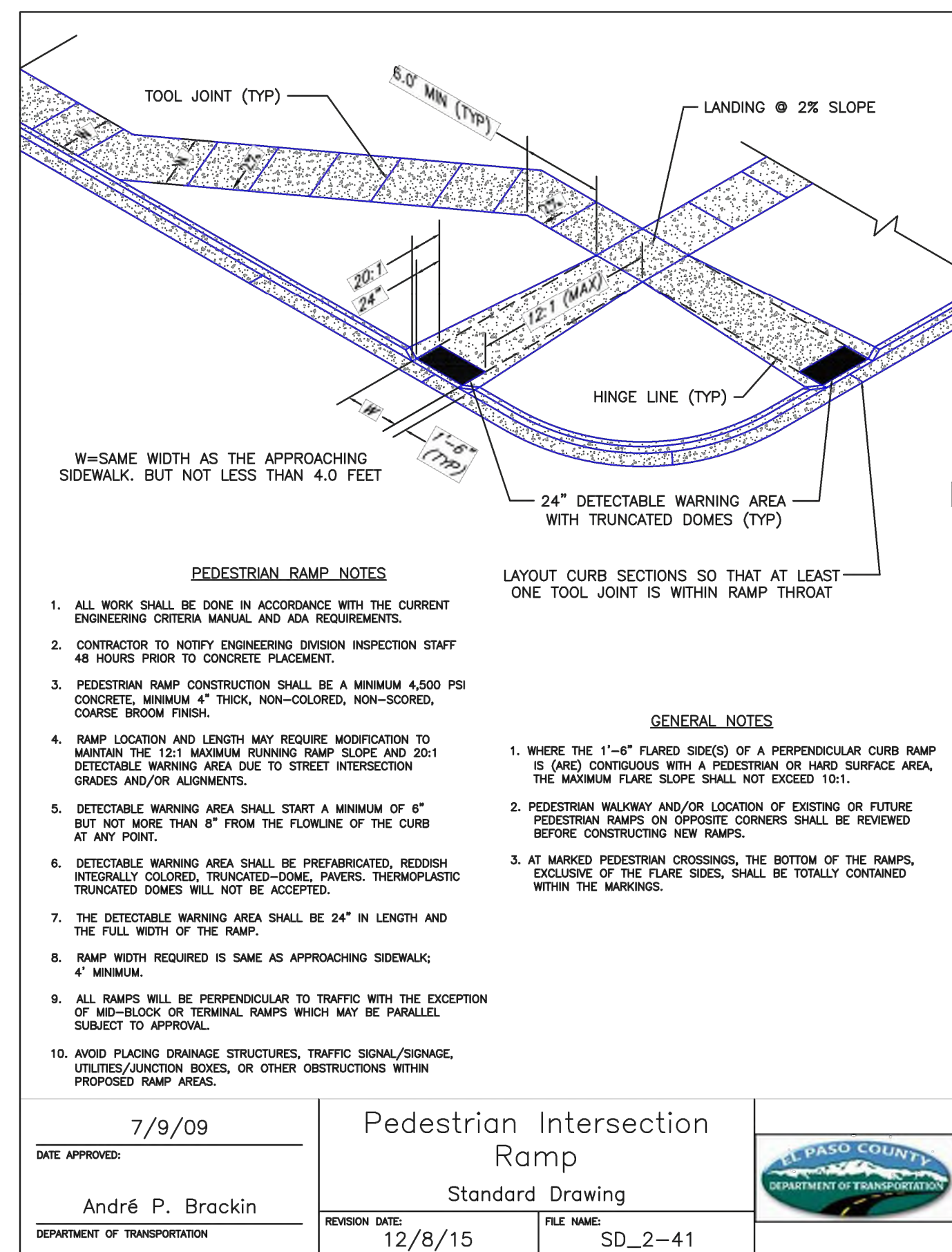
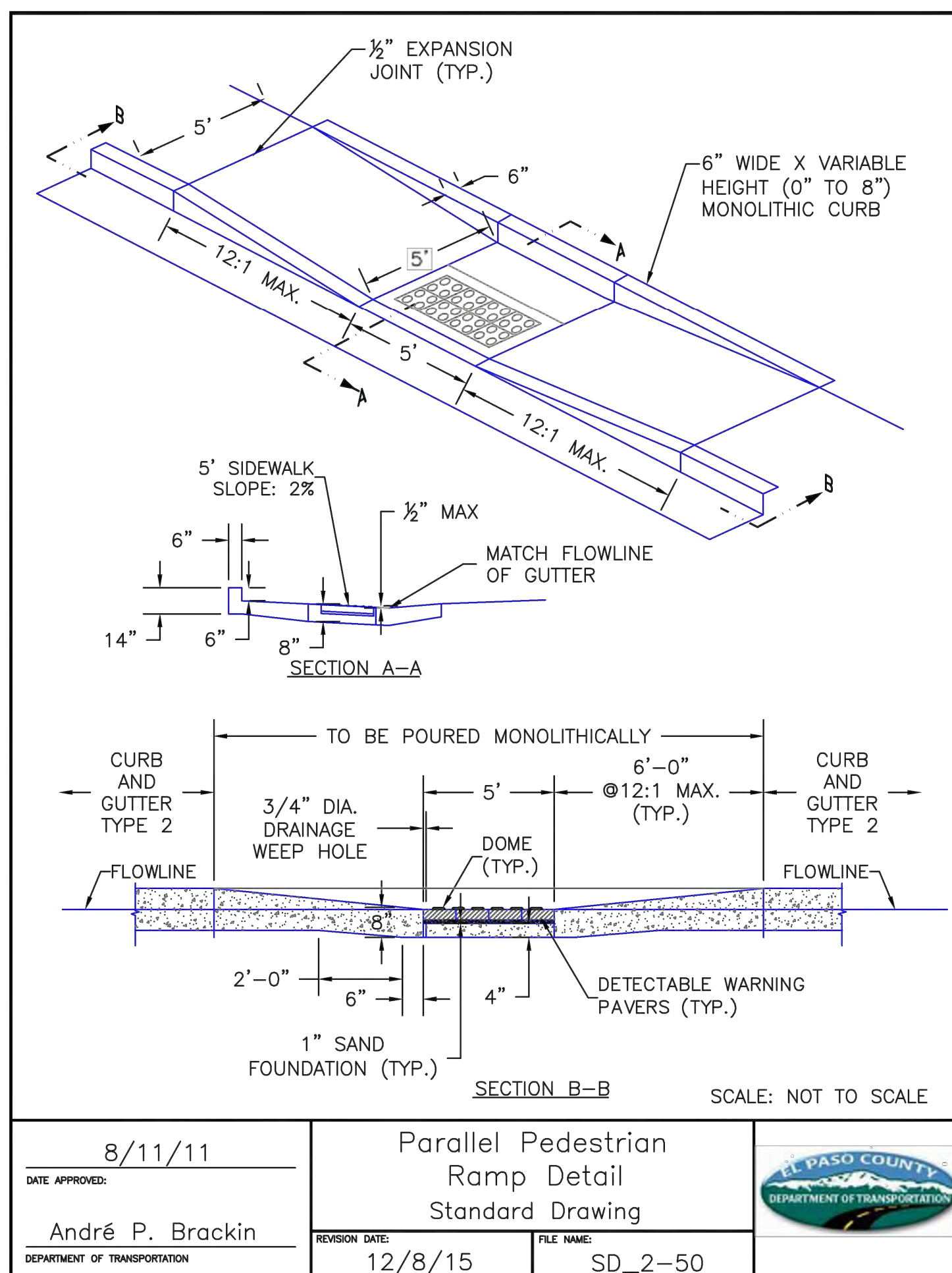
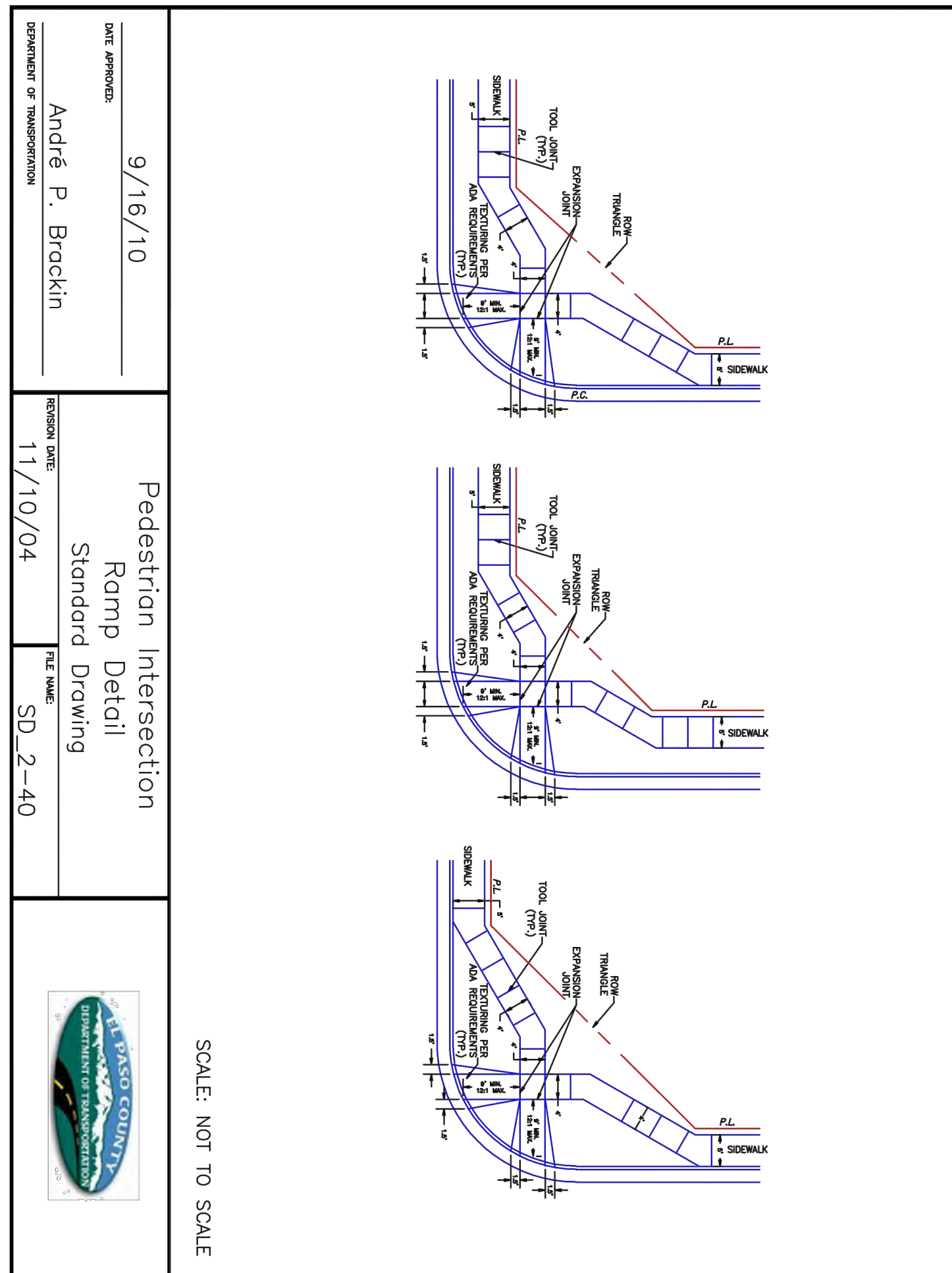
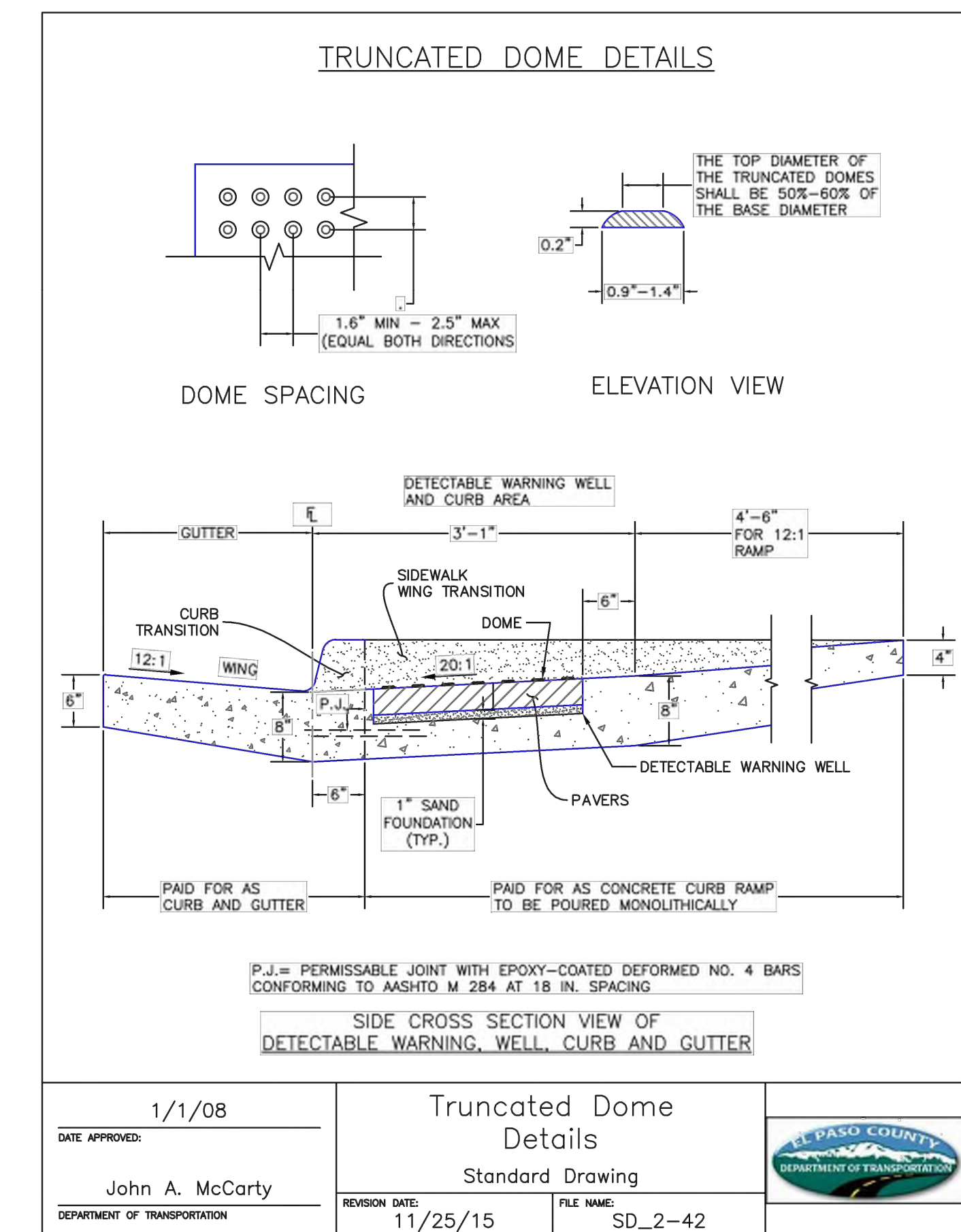
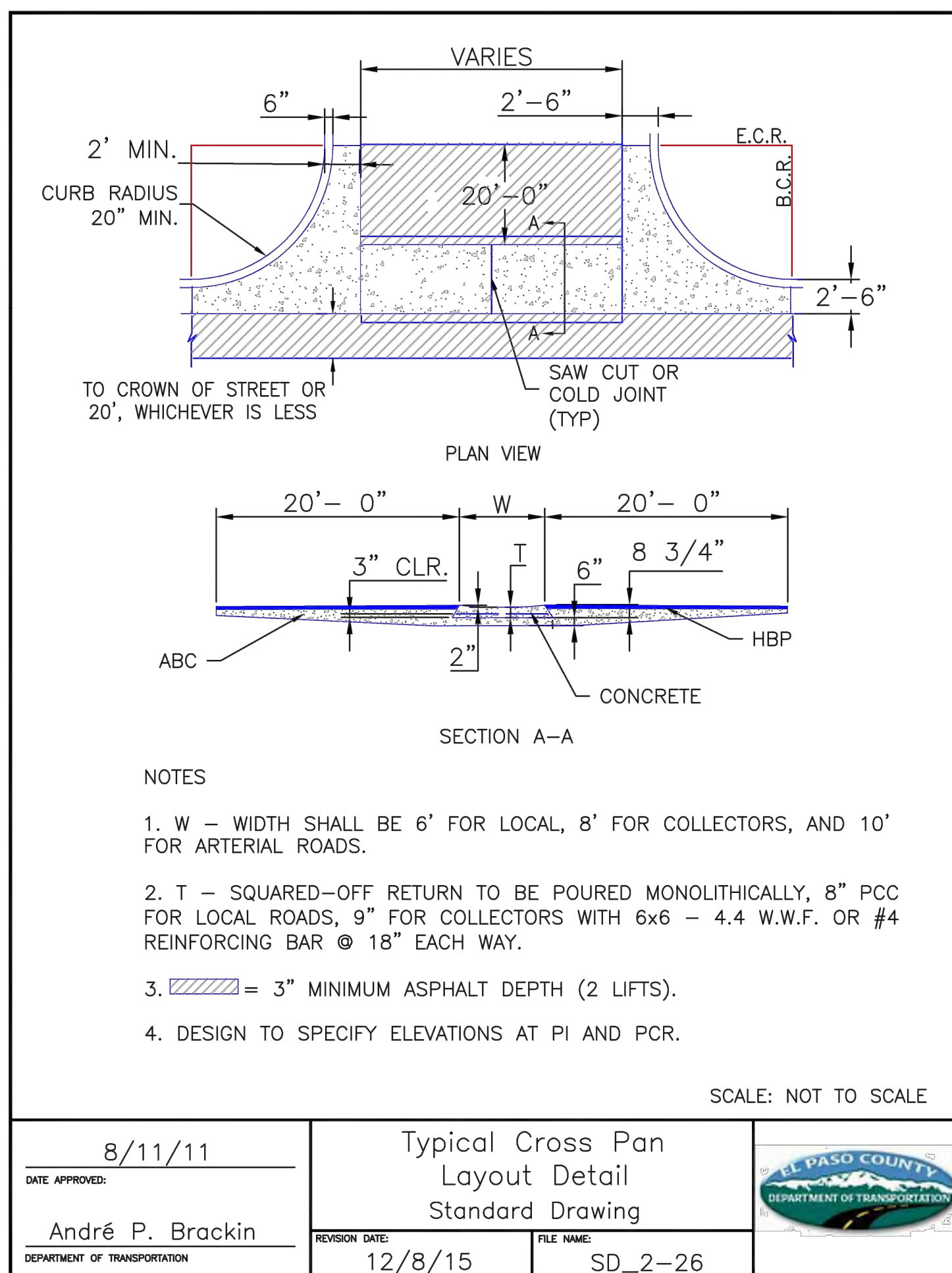
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Project No:	CLH-14.20
Drawn By:	JDP
Checked By:	RGD
Date:	7/29/2019

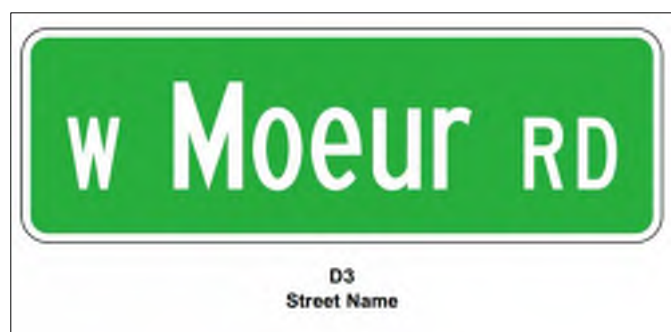
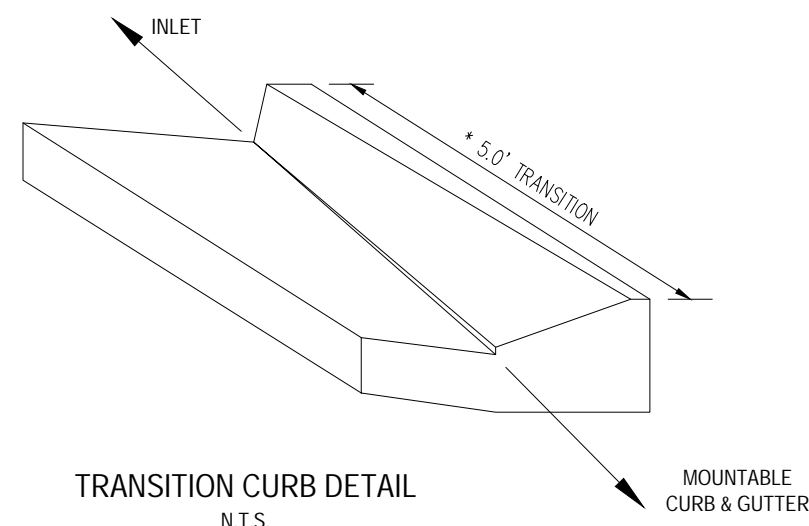
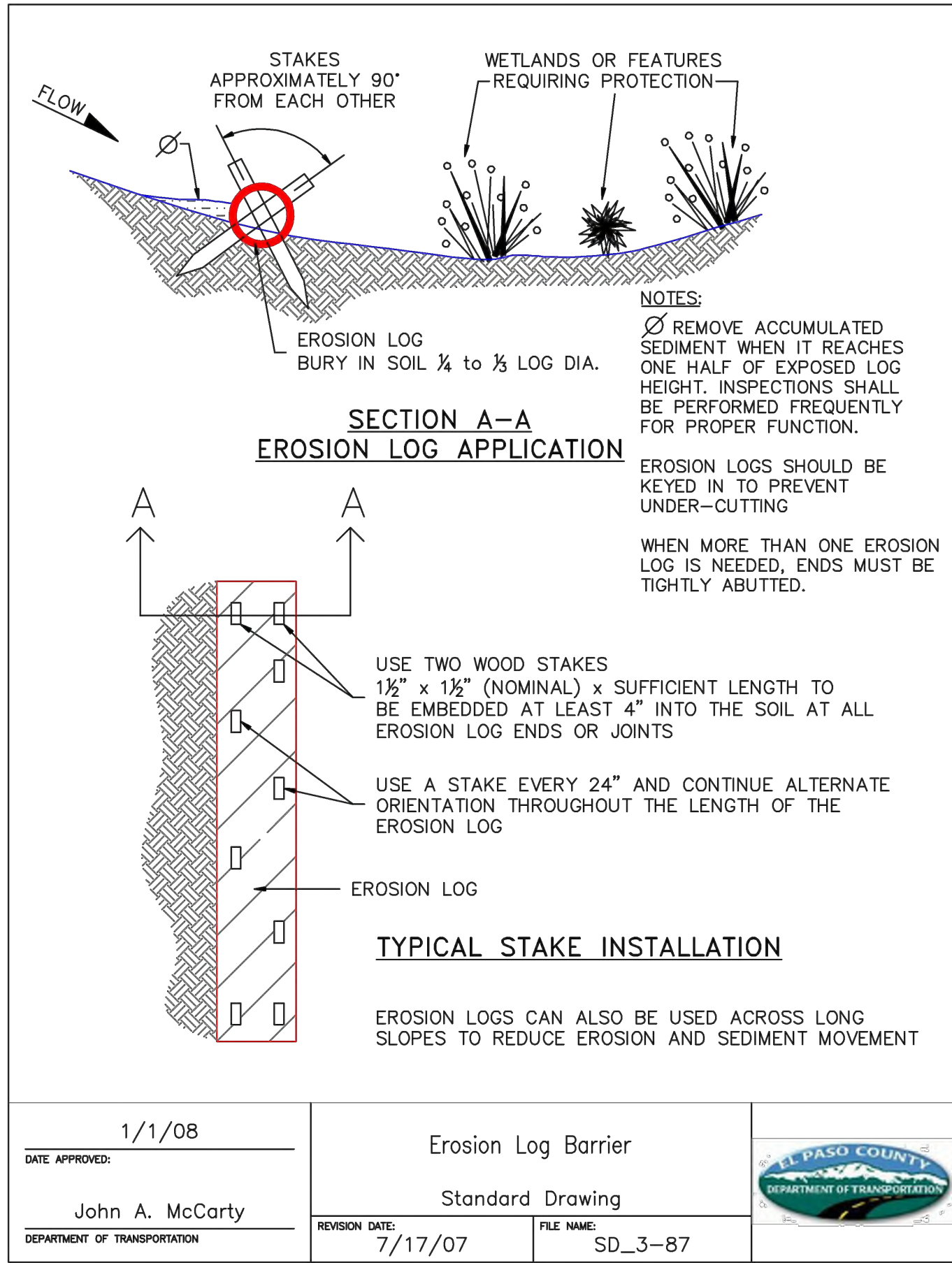
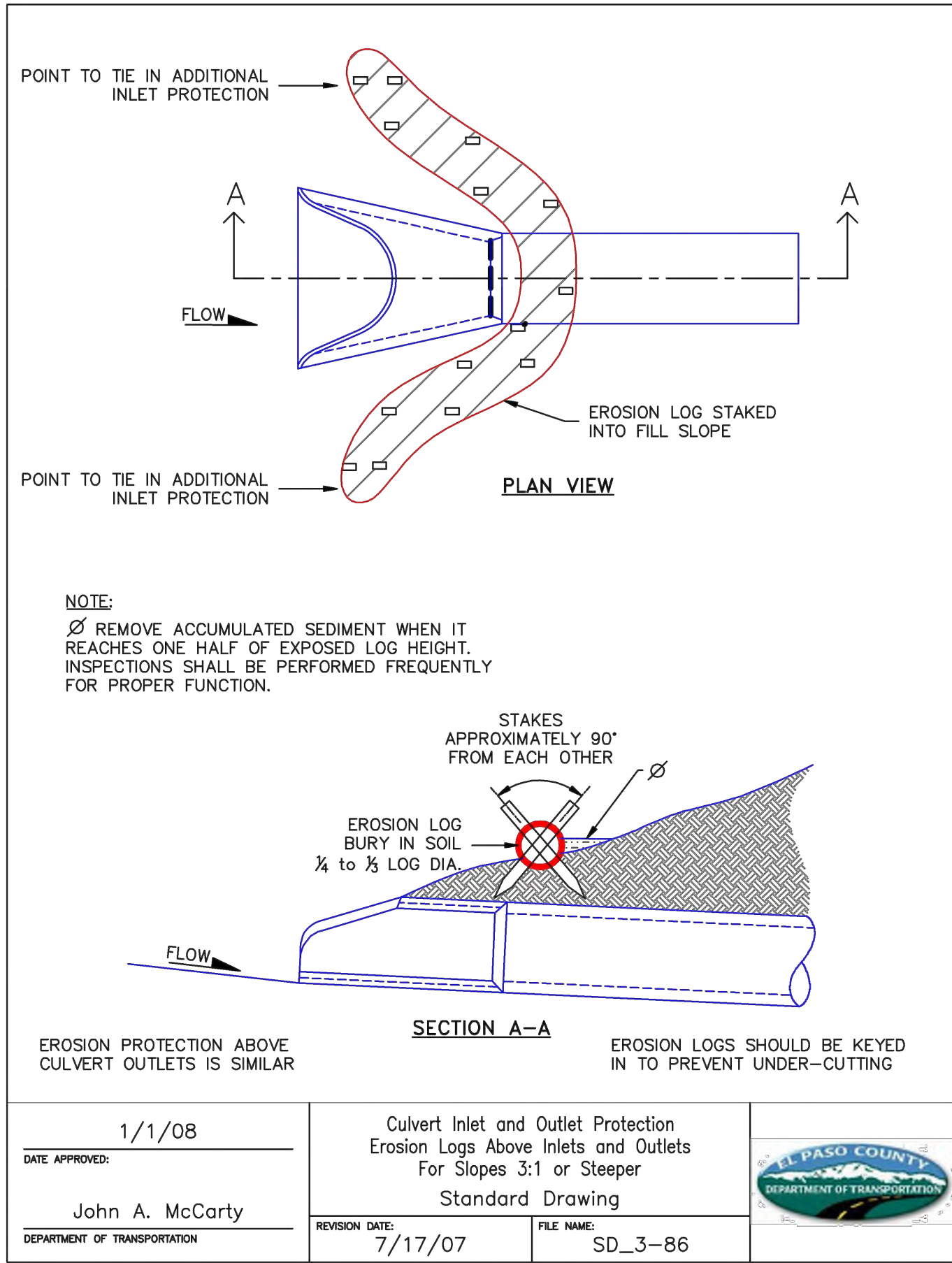
## SITE DETAILS

C7.01

Sheet 36 of 38



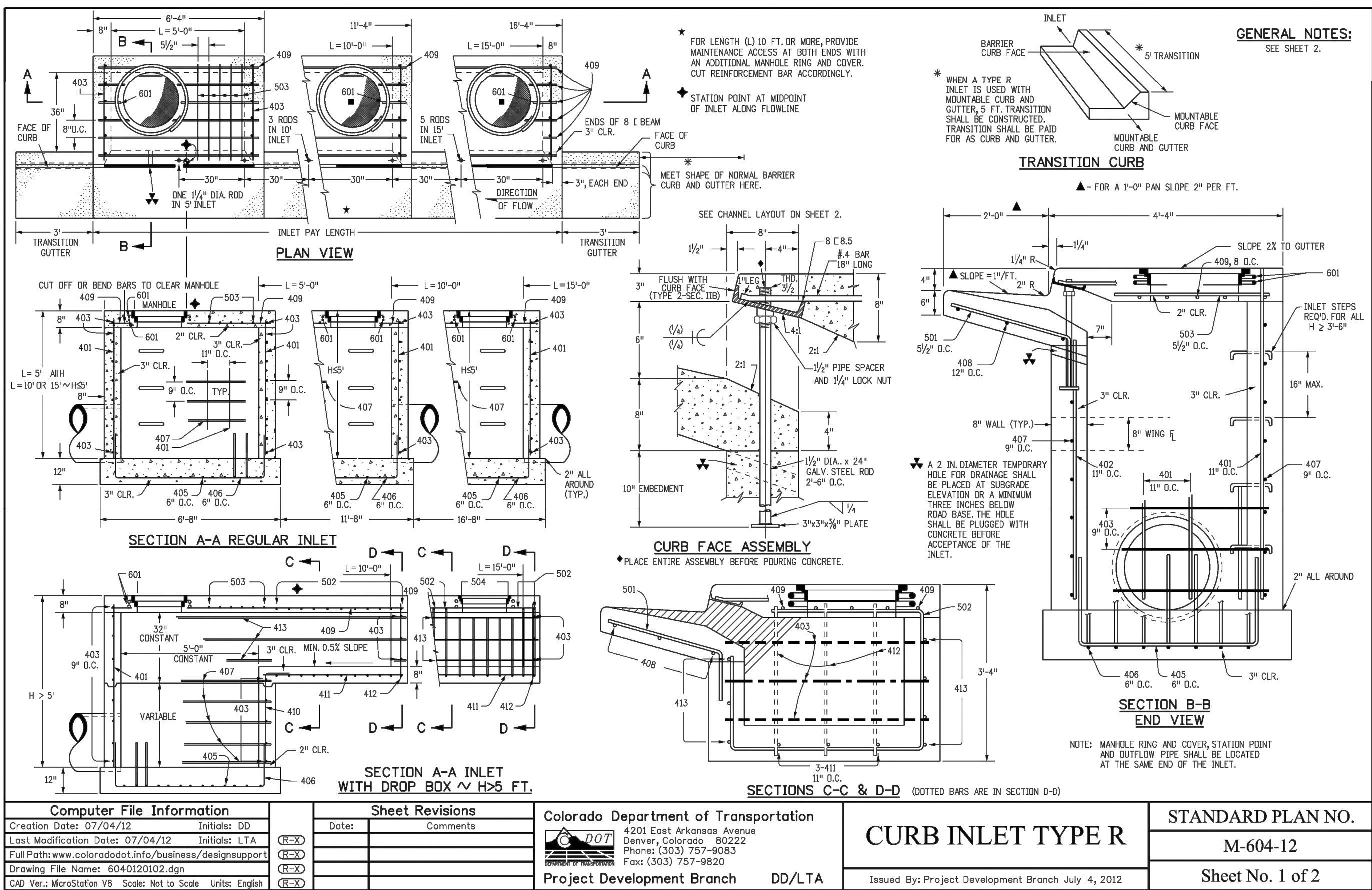




**NOTE:**  
ALL INTERNAL SIGNS SHALL BE 4" FONT LETTER SIZE

**NOTE TO CONTRACTOR:**  
SIGNS AND POLES SHALL BE PER CDOT STANDARDS S-614-2, S-614-3 AND S-614-8, LATEST REVISION

ALL SIGNAGE INSTALLATION IS TO BE IN COMPLIANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.



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Project No:	CLH-14.20
Drawn By:	JDP
Checked By:	RGD
Date:	7/29/2019

MARK	BAR #	O.C. SPACING	TYPE	ALL INLETS				INLETS: H ≤ 5 FT.				INLETS: H > 5 FT.			
				L = 5 FT.		L = 10 FT.		L = 15 FT.		L = 5 FT.		L = 10 FT.		L = 15 FT.	
				NO. REQ'D	LENGTH	NO. REQ'D	LENGTH	NO. REQ'D	LENGTH	NO. REQ'D	LENGTH	NO. REQ'D	LENGTH	NO. REQ'D	LENGTH
401	4	1 1/4"	II	15	*	21	*	26	*	11	*	11	*		
402	4	1 1/4"	II	7	*	13	*	18	*	7	*	7	*		
403	4	9"	II	*	4'-0"	*	4'-0"	*	4'-0"	*	4'-0"	*	4'-0"		
405	4	6"	VI	11	8'-0"	21	8'-0"	31	8'-0"	11	8'-0"	11	8'-0"		
406	4	6"	VIII	11	13'-0"	21	13'-0"	31	13'-0"	11	13'-0"	11	13'-0"		
407	4	6"	VI	11	8'-0"	7	10'-0"	6	15'-0"	6	5'-0"	5	5'-0"		
408	4	12"	II	3	8'-0"	3	11'-0"	3	15'-0"	3	11'-0"	3	16'-0"		
409	4	12"	II	6	5'-0"	6	10'-0"	6	15'-0"	6	10'-0"	6	15'-0"		
410	4	1 1/4"	VII	*	*	*	*	*	*	3	3	3	3		
411	4	1 1/4"	II	*	*	*	*	*	*	3	5'-2"	3	10'-2"		
412	4	1 1/4"	II	*	*	*	*	*	*	3	2'-0"	3	2'-0"		
413	4	9"	II	*	*	*	*	*	*	7	10'-0"	7	15'-0"		

405	4	6"	VI	11	6'-10"	21	6'-10"	31	6'-10"	11	6'-10"	11	6'-10"
406	4	6"	VIII	7	8'-10"	7	13'-10"	7	18'-10"	7	8'-10"	7	8'-10"
407	4	6"	II	11	6'-10"	21	6'-10"	31	6'-10"	11	6'-10"	11	6'-10"
408	4	12"	II	3	6'-10"	3	11'-10"	3	16'-10"	3	6'-10"	3	6'-10"
409	4	8"	II	6	5'-10"	6	10'-10"	6	15'-10"	6	5'-10"	6	5'-10"
410	4	1"	VII	11	6'-10"	21	6'-10"	31	6'-10"	11	6'-10"	11	6'-10"
411	4	1"	II	7	8'-10"	7	13'-10"	7	18'-10"	7	8'-10"	7	8'-10"
412	4	1"	II	7	8'-10"	7	13'-10"	7	18'-10"	7	8'-10"	7	8'-10"
413	4	8"	II	*	4'-0"	*	4'-0"	*	4'-0"	*	4'-0"	*	4'-0"

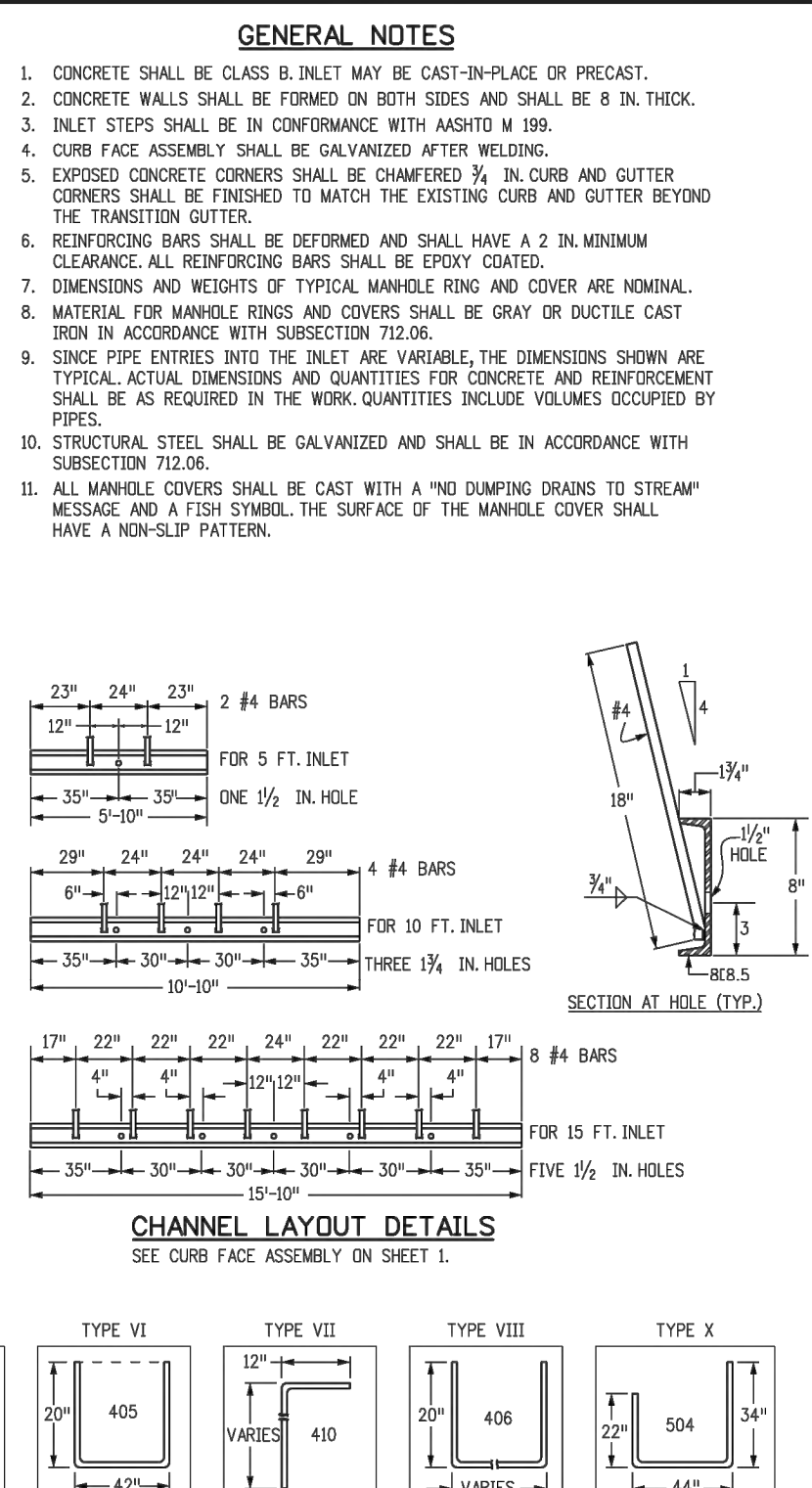
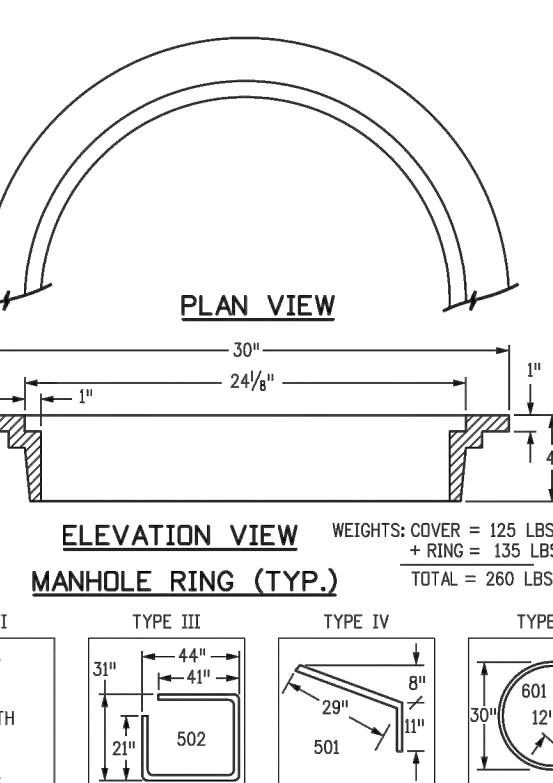
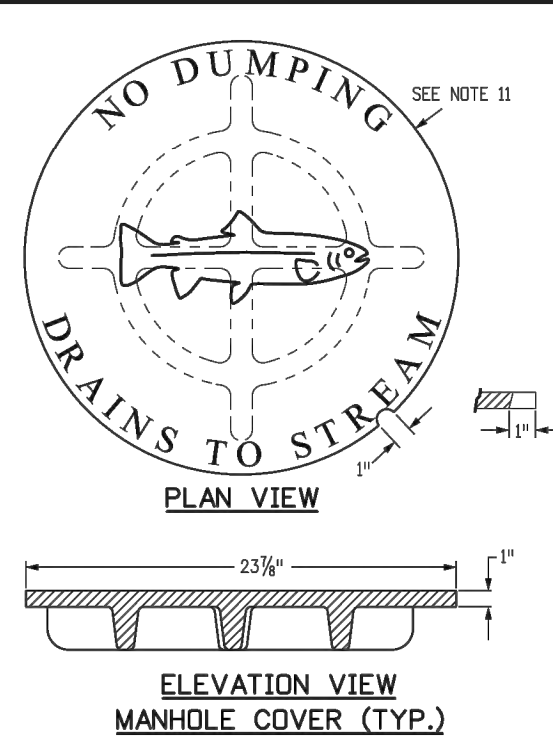
\* VARIABLE REFER TO TABLE TWO.  
■ INCLUDE #4, 18 IN BARS (SEE CHANNEL LAYOUT).

H"	LENGTH	NO. REQ'D.		L = 5 FT.	L = 10 FT.	L = 15 FT.	L = 20 FT.
		REGULAR	DROP BOX				
3'-0"	2'-0"	1'-0"	10	7	3.2	285	5.3
3'-6"	3'-2"	2'-2"	10	7	3.4	305	5.7
4'-0"	3'-8"	2'-8"	12	9	3.7	326	6.0
4'-6"	4'-2"	3'-2"	12	9	3.9	334	6.4
5'-0"	4'-8"	3'-8"	14	11	4.1	354	6.7
5'-6"	5'-2"	4'-2"	16	13	4.4	375	7.0
6'-0"	5'-8"	4'-8"	18	15	4.6	385	7.2
6'-6"	6'-2"	5'-2"	18	15	4.8	402	7.4
7'-0"	6'-8"	5'-8"	20	17	5.0	423	7.6
7'-6"	7'-2"	6'-2"	20	17	5.3	430	7.8
8'-0"	7'-8"	6'-8"	22	19	5.5	451	8.0
8'-6"	8'-2"	7'-2"	24	21	5.7	471	8.2
9'-0"	8'-8"	7'-8"	24	21	6.0	479	8.4
9'-6"	9'-2"	8'-2"	26	23	6.2	499	8.6
10'-0"	9'-8"	8'-8"	28	25	6.4	520	8.8
10'-6"	10'-2"	9'-2"	28	25	6.7	527	9.0
11'-0"	10'-8"	9'-8"	30	27	6.9	547	9.2

NOTES: FOR L = 5 FT., L = 10 FT., AND L = 15 FT.  
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.

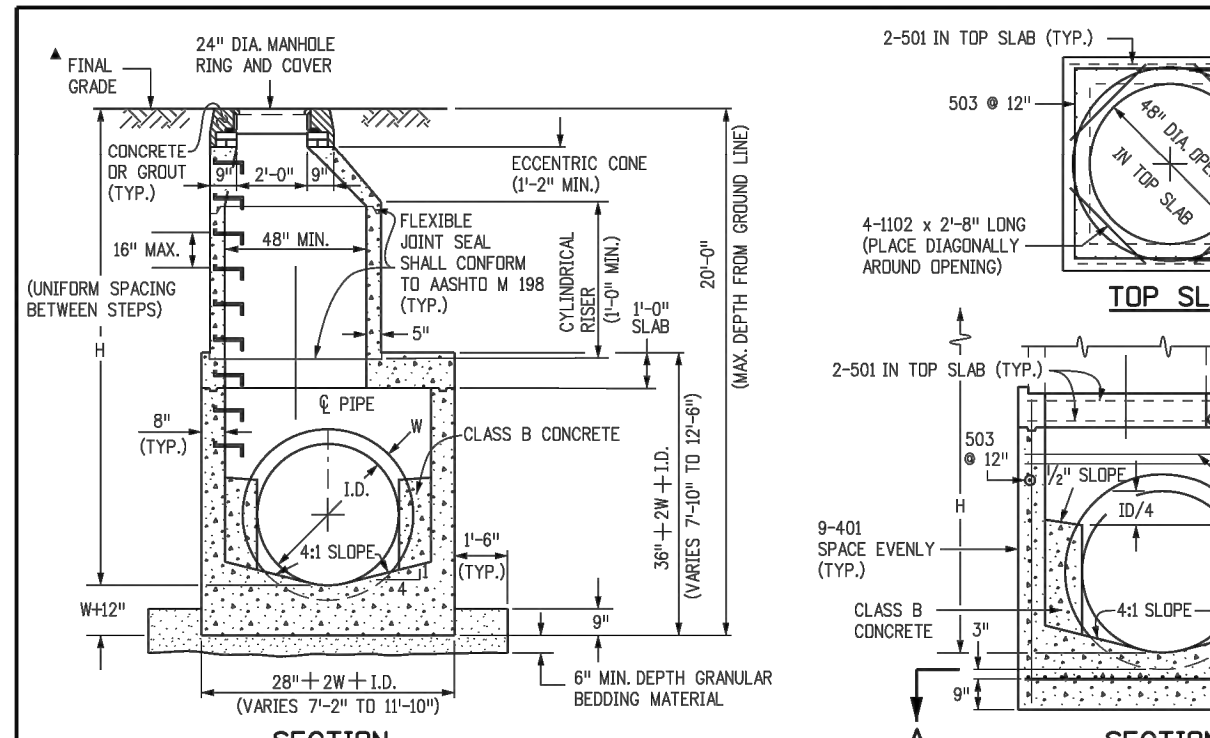
TABLE TWO ~ BARS AND QUANTITIES VARIABLE WITH "H"

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Creation Date: 07/04/12	Initials: DD	Date:	Comments:	4201 East Arkansas Avenue	Denver, Colorado 80222	M-604-12	
Last Modification Date: 07/04/12	Initials: LTA			Phone: (303) 757-9083	Fax: (303) 757-9820	Sheet No. 2 of 2	
Full Path: www.coloradodot.info/business/designsupport				Project Development Branch	DD/LTA		
Drawing File Name: M06040200203.dgn							
CAD Ver.: MicroStation V8	Scale: Not to Scale	Units: English					



BAR BENDING DIAGRAMS ~ (DIMENSIONS ARE OUT-TO-OUT OF BAR)

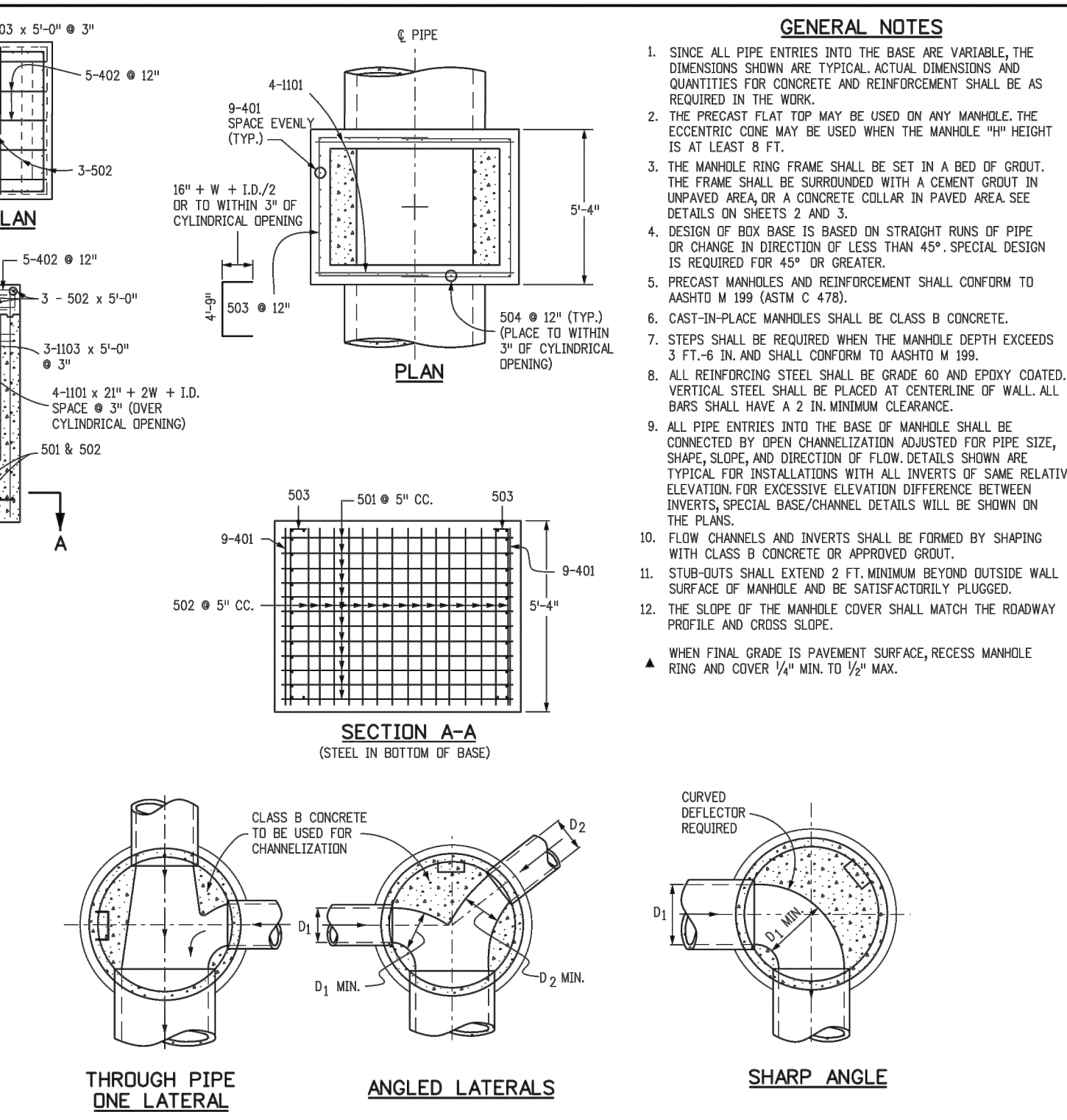
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Last Modification Date: 07/04/12	Initials: LTA			Phone: (303) 757-9083	Fax: (303) 757-9820	Sheet No. 2 of 2	
Full Path: www.coloradodot.info/business/designsupport				Project Development Branch	DD/LTA		
Drawing File Name: M06040200203.dgn							
CAD Ver.: MicroStation V8	Scale: Not to Scale	Units: English					



MARK	SIZE	TYPE	W.T. W/T.	BARS	I.D.						FORMULAS
					54"	60"	66"	72"	84"	96"	
401	4	I	0.668	18	18	18	18	18	18	18	401 BAR LENGTH = 32" + 2W + I.D.
402	4	III	0.668	5	5	5	5	5	5	5	402 BAR LENGTH = I.D. + 2W
501	5	I	1.043	17	17	17	17	17	17	17	501 BAR LENGTH = 24" + I.D. + 2W
502	5	I	1.043	17	17	17	17	17	17	17	502 NUMBER BARS REQ'D. = 3 + (24/I.D.) + 2W
503	5	II	1.043	17	17	17	17	17	17	17	503 NUMBER BARS REQ'D. = 6 + (19/I.D.) + 2W
504	5	I	1.043	17	17	17	17	17	17	17	504 BAR LENGTH = 44" + 2W + I.D. + 2W
1101	11	I	5.313	4	4	4	4	4	4	4	1101 BAR LENGTH = 24" + I.D. + 2W
1102	11	I	5.313	4	4	4	4	4	4	4	1102 BAR LENGTH = 24" + I.D. + 2W
1103	11	I	5.313	4	4	4	4	4	4	4	1103 BAR LENGTH = 24" + I.D. + 2W
REINFORCING STEEL TOTAL					955.8	1037.5	1127.5	1204.0	1380.2	1601.8	
CONCRETE - CUBIC YARDS - TOTAL					6.0	6.6	7.3	8.0	9.5	11.1	

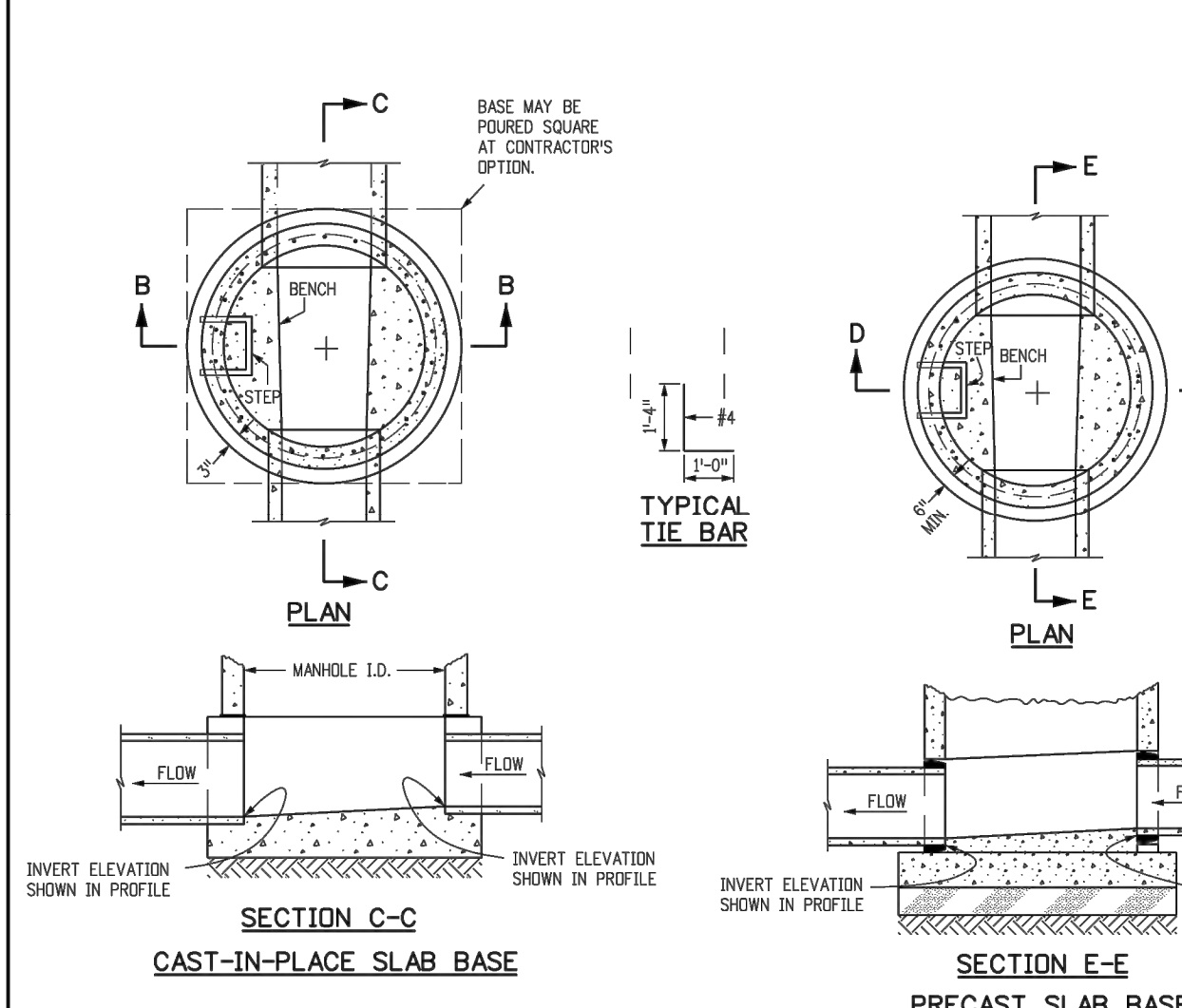
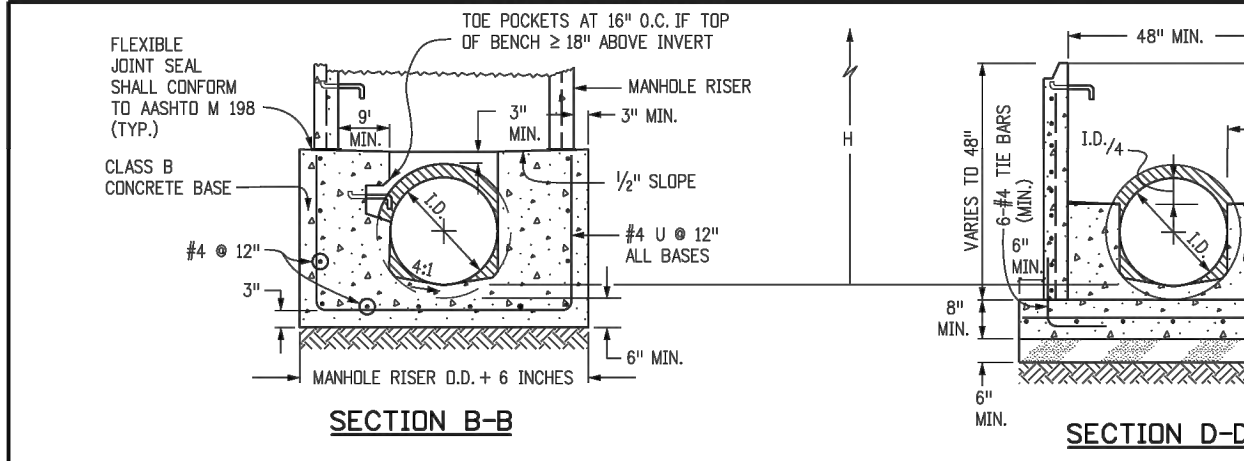
NOTE: QUANTITIES ARE BASED ON SAME SIZE PIPE ENTRANCE TO AND EXIT FROM BASE, AND A 4" T. MANHOLE.

Computer File Information		Sheet Revisions		Colorado Department of Transportation		STANDARD PLAN NO.	
Creation Date: 07/04/12	Initials: DD	Date:	Comments:	4201 East Arkansas Avenue	Denver, Colorado 80222	M-604-20	
Last Modification Date: 07/04/12	Initials: LTA			Phone: (303) 757-9083	Fax: (303) 757-9820	Sheet No. 1 of 3	
Full Path: www.coloradodot.info/business/designsupport				Project Development Branch	DD/LTA		
Drawing File Name: M06040200303.dgn							
CAD Ver.: MicroStation V8	Scale: Not to Scale	Units: English					



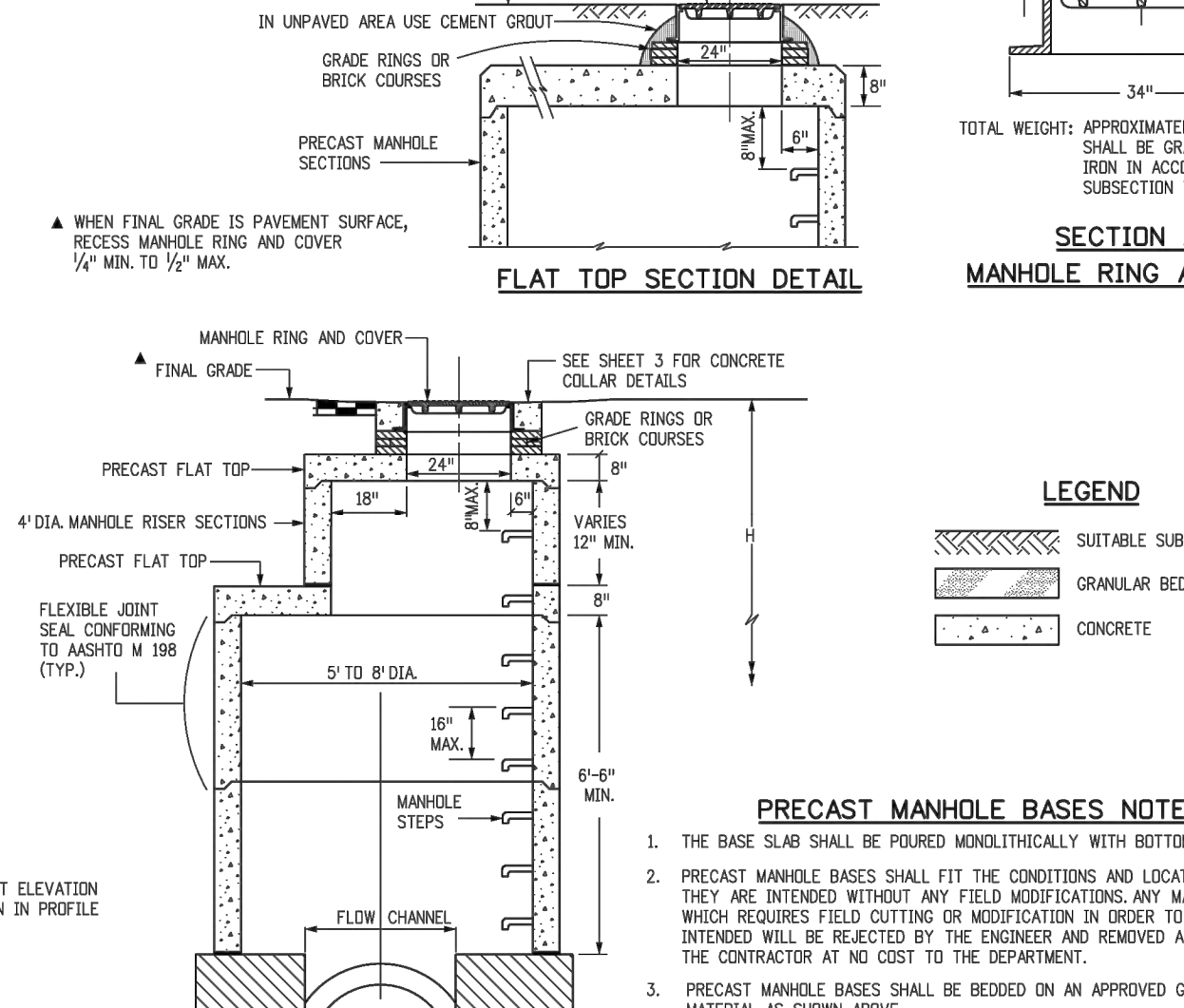
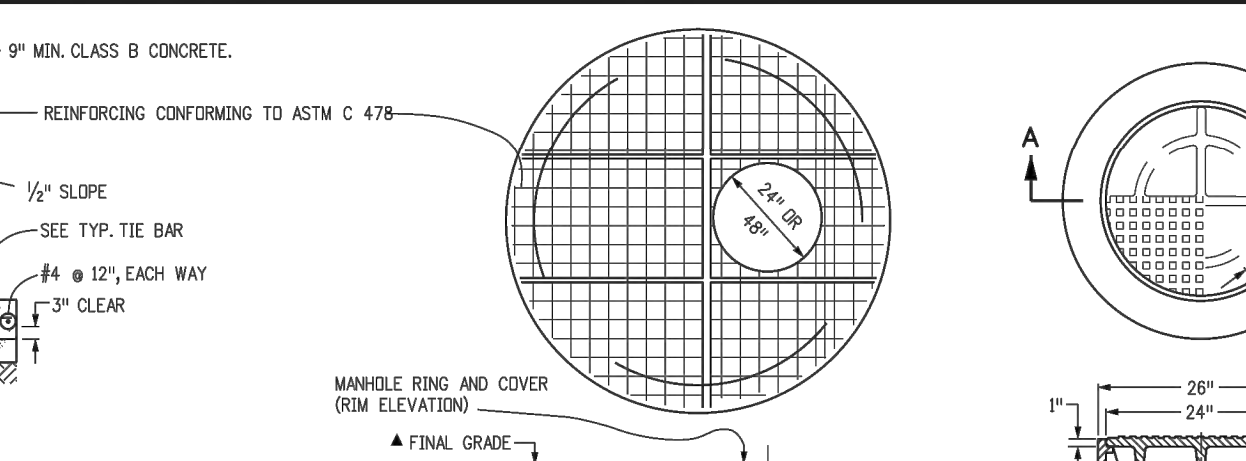
TYPICAL CHANNELIZATION DETAILS

Computer File Information		Sheet Revisions		Colorado Department of Transportation		STANDARD PLAN NO.	
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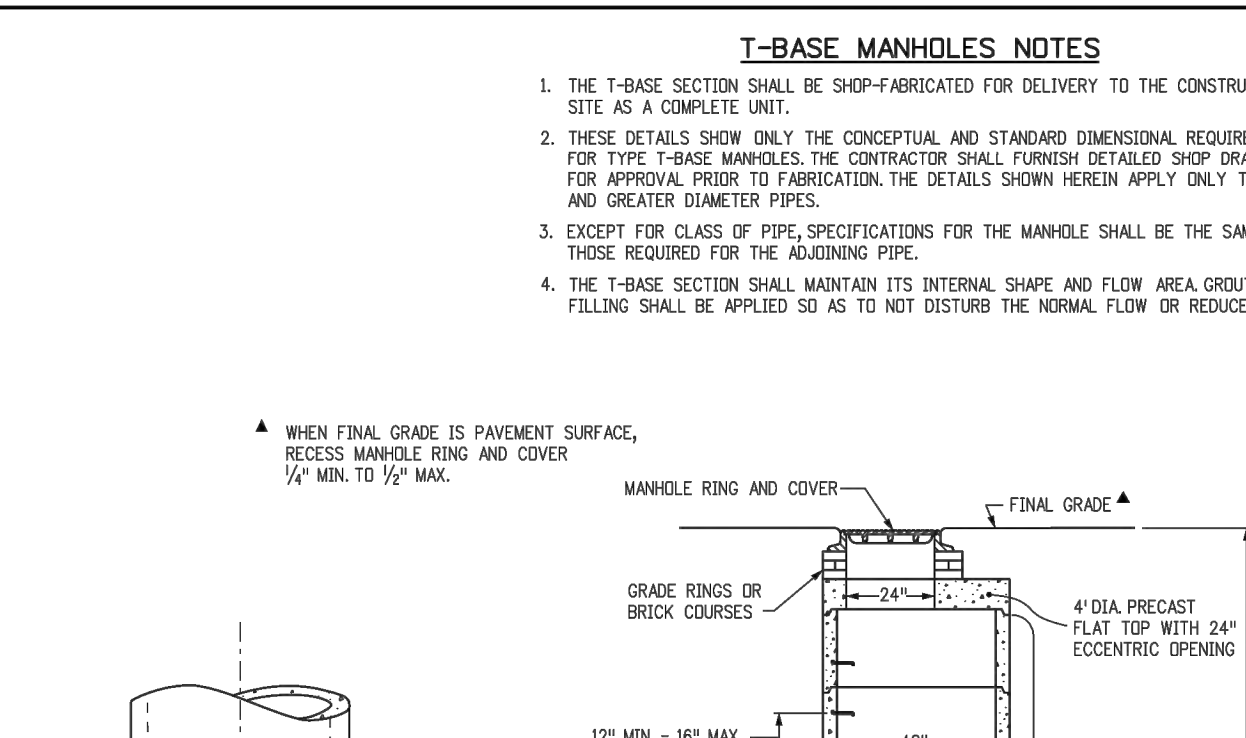
PRECAST MANHOLE BASES NOTES:

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Last Modification Date: 07/04/12	Initials: LTA			Phone: (303) 757-9083	Fax: (303) 757-9820	Sheet No. 2 of 3	
Full Path: www.coloradodot.info/business/designsupport				Project Development Branch	DD/LTA		
Drawing File Name: M06040200203.dgn							
CAD Ver.: MicroStation V8	Scale: Not to Scale	Units: English					



PRECAST MANHOLE BASES NOTES:

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501	5	I	1.043	17	17	17	17	17	17	17	501 BAR LENGTH = 24" + I.D. + 2W
502	5	I	1.043	17	17	17	17	17	17	17	502 NUMBER BARS REQ'D. = 3 + (24/I.D.) + 2W
503	5	II	1.043	17	17	17	17	17	17	17	503 NUMBER BARS REQ'D. = 6 + (19/I.D.) + 2W
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1101	11	I	5.313	4	4	4	4	4	4	4	1101 BAR LENGTH = 24" + I.D. + 2W
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T-BASE MANHOLES NOTES:

1. THE T-BASE SECTION SHALL BE SHIP-FABRICATED FOR DELIVERY TO THE CONSTRUCTION SITE AS A COMPLETE UNIT.	
2. THESE DETAILS SHOW ONLY THE CONCEPTUAL AND STANDARD DIMENSIONAL REQUIREMENTS FOR TYPE T-BASE MANHOLES. THE CONTRACTOR SHALL FURNISH DETAILED SHOP DRAWINGS FOR APPROVAL PRIOR TO FABRICATION. THE DETAILS SHOWN HEREIN APPLY ONLY TO 48 IN. AND GREATER DIAMETER PIPES.	
3. EXCEPT FOR CLASS OF PIPE SPECIFICATIONS FOR THE MANHOLE SHALL BE THE SAME AS THOSE REQUIRED FOR THE ADDING PIPE.	
4. THE T-BASE SECTION SHALL MAINTAIN ITS INTERNAL SHAPE AND FLOW AREA GRADING OR FILLING SHALL BE APPLIED SO AS TO NOT DISTURB THE NORMAL FLOW OR REDUCE THE AREA.	

CIRCULAR RIGID PIPE (TRANSVERSE SECTION)

MANHOLE T-BASE

MANHOLE T-BASE

MANHOLE T-BASE



# BENT GRASS RESIDENTIAL FILING NO. 2

## COUNTY OF EL PASO, STATE OF COLORADO

# UTILITY CONSTRUCTION PLANS

## AUGUST 2019

### GENERAL NOTES:

1. ALL UTILITY CONSTRUCTION TO BE CONDUCTED IN CONFORMANCE WITH THE CURRENT WOODMEN HILLS METROPOLITAN DISTRICT (WHMD, THE DISTRICT) SPECIFICATIONS.
2. ALL PLANS ON THE JOB SITE SHALL BE SIGNED BY THE DISTRICT AND THE DISTRICT'S ENGINEER. ANY REVISION TO THE PLANS SHALL BE SO NOTED WITH THE OLD DRAWING MARKED NOT VALID.
3. ALL STATIONING IS CENTER LINE UNLESS OTHERWISE NOTED. ALL ELEVATIONS ARE CENTER LINE UNLESS OTHERWISE NOTED.
4. ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY THE DISTRICT. THE DISTRICT RESERVES THE RIGHT TO ACCEPT OR REJECT ANY SUCH MATERIALS AND WORKMANSHIP THAT DOES NOT CONFORM TO ITS STANDARDS AND SPECIFICATIONS.
5. ALL WATER AND SEWER SERVICE LOCATIONS SHALL BE CLEARLY MARKED ON EITHER THE CURB HEAD OR THE FACE OF THE CURB, WITH AN "S" FOR SEWER AND A "W" FOR WATER.
6. DUCTILE IRON PIPES, INCLUDING FITTINGS, VALVES AND FIRE HYDRANTS, SHALL BE WRAPPED WITH POLYETHYLENE TUBING, DOUBLE BONDED AT EACH JOINT AND ELECTRICALLY ISOLATED. BONDING AND ANODE CONNECTIONS SHALL BE THOROUGHLY COATED WITH BITUMINOUS COATINGS.
7. ALL DUCTILE IRON PIPE LESS THAN 12 INCHES AND FITTINGS SHALL HAVE CATHODIC PROTECTION USING TWO NO. 6 WIRES WITH 17 LB. MAGNESIUM ANODES EVERY 400 FEET AND 9 LB. MAGNESIUM ANODES AT EACH FITTING. ALL DUCTILE IRON PIPE 12 INCHES AND GREATER AND FITTINGS SHALL HAVE CATHODIC PROTECTION USING TWO NO. 6 WIRES WITH 17 LB. MAGNESIUM ANODES EVERY 300 FEET AND 9 LB. MAGNESIUM ANODES AT EACH FITTING.
8. ALL PIPE MATERIAL, BACKFILL AND INSTALLATION SHALL CONFORM TO THE APPLICABLE SPECIFICATIONS OF THE CITY OF COLORADO SPRINGS, COLORADO DEPARTMENT OF TRANSPORTATION, EL PASO COUNTY DEPARTMENT OF TRANSPORTATION, COLORADO SPRINGS UTILITIES AND THE GEOTECHNICAL ENGINEER.
9. COMPACTION TESTS SHALL BE 95% STANDARD PROCTOR AS DETERMINED BY ASTM D698, UNLESS OTHERWISE APPROVED BY THE DISTRICT OR HIGHER STANDARD AS IMPOSED BY ANOTHER AGENCY HAVING RIGHT-OF-WAY JURISDICTION. THIS SHALL INCLUDE ALL VALVES, FIRE HYDRANT RUNS, WATER & SEWER SERVICE LINES AND MANHOLES. ALL REPORTS SHALL BE SUBMITTED TO THE DISTRICT FOR REVIEW AND APPROVAL.
10. THE LOCATION OF ALL EXISTING UTILITIES SHOWN ON THE DRAWINGS ARE APPROXIMATE ONLY. THE LOCATION OF ALL UTILITIES SHALL BE FIELD VERIFIED PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES. THE DISTRICT SHALL BE NOTIFIED OF ANY DEVIATIONS TO THE LINE AND/OR GRADE AS DEPICTED ON THE PLANS. CONTRACTOR SHALL SUBMIT TO THE DISTRICT AND THE ENGINEER OF RECORD A REPORT OF THE FIELD VERIFIED INFORMATION PRIOR TO THE START OF CONSTRUCTION.
11. ALL BENDS SHALL BE FIELD STAKED PRIOR TO THE START OF CONSTRUCTION.
12. BENDS, DEFLECTION & CUT PIPE LENGTHS SHALL BE USED TO HOLD HORIZONTAL ALIGNMENT OF SEWER AND WATER LINES TO NO MORE THAN 0.5' FROM THE DESIGNED ALIGNMENT. CONSTRUCTION STAKES TO BE AT 25' INTERVALS ALONG CURVES TO ASSURE LOCATION OF PIPE LINE CONSTRUCTION.
13. AT ALL LOCATIONS WHERE CAP AND STUB IS NOTED ON DRAWINGS, PROVIDE A PLUG AT THE END OF THE PIPE JOINT NEAREST THE SPECIFIED STATION. PROVIDE A REVERSE ANCHOR AT ALL WATER LINE PLUGS.
14. ALL UNUSED SALVAGED WATER UTILITY MATERIAL SHALL BE RETURNED TO THE METROPOLITAN DISTRICT AS REQUESTED.
15. AT THE CONTRACTOR'S EXPENSE, ALL UTILITY MAINS SHALL BE SUPPORTED AND PROTECTED SUCH THAT THEY SHALL FUNCTION CONTINUOUSLY DURING CONSTRUCTION OPERATIONS. SHOULD A UTILITY MAIN FAIL AS A RESULT OF THE CONTRACTOR'S OPERATION, IT SHALL BE REPLACED IMMEDIATELY BY THE CONTRACTOR OR BY THE DISTRICT AT FULL COST OF LABOR AND MATERIALS TO THE CONTRACTOR/DEVELOPER.
16. PUMPING OR BYPASS OPERATIONS SHALL BE REVIEWED AND APPROVED BY BOTH THE DISTRICT AND THE DISTRICT ENGINEER PRIOR TO EXECUTION.
17. THE CONTRACTOR SHALL REPLACE OR REPAIR DAMAGE TO ALL SURFACE IMPROVEMENTS, INCLUDING BUT NOT LIMITED TO FENCES, LANDSCAPING, CURB AND GUTTER AND/OR ASPHALT THAT MAY BE CAUSED DURING CONSTRUCTION.
18. ALL CONTRACTORS WORKING ON OR NEAR A WATER OR SEWER FACILITY (TO INCLUDE SERVICE LINES) SHALL HAVE LIABILITY INSURANCE NAMING THE DISTRICT AS AN ADDITIONAL INSURED AND SHALL PROVIDE A CURRENT COPY OF WORKERS COMPENSATION INSURANCE ON FILE WITH THE DISTRICT. NO WORK CAN PROCEED WITHOUT CURRENT CERTIFICATES ON FILE AT THE DISTRICT'S OFFICE.
19. THE CONTRACTOR SHALL NOTIFY THE DISTRICT AND ALL AFFECTED UTILITY COMPANIES ADJACENT TO THE PROPOSED UTILITY CONSTRUCTION A MINIMUM OF 48 HOURS AND A MAXIMUM OF 96 HOURS PRIOR TO THE START OF CONSTRUCTION. A WEEKLY CONSTRUCTION MEETING SHALL BE REQUIRED WITH THE CONTRACTOR, DISTRICT ENGINEER AND ALL OTHER PARTIES AS DEEMED NECESSARY BY THE DISTRICT.
20. COMMENCEMENT OF CONSTRUCTION OF WATER/SEWER SYSTEMS WITHIN METROPOLITAN DISTRICT:
  - A) PRIOR TO THE START OF CONSTRUCTION, A PRE-CONSTRUCTION MEETING IS REQUIRED A MINIMUM OF 48 HOURS IN ADVANCE OF COMMENCEMENT OF WORK. A REPRESENTATIVE OF THE OWNER OR DEVELOPER, A REPRESENTATIVE OF THE CONTRACTOR AND DESIGN ENGINEER ARE REQUIRED TO ATTEND. CONTACT THE DISTRICT TO SCHEDULE THE PRE-CONSTRUCTION MEETING. NO PRE-CONSTRUCTION MEETING CAN BE SCHEDULED PRIOR TO FOUR (4) SIGNED APPROVED PLAN SETS ARE RECEIVED BY THE DISTRICT.
  - B) THE CONTRACTOR IS REQUIRED TO NOTIFY THE DISTRICT A MINIMUM OF 48 HOURS AND A MAXIMUM OF 2 WEEKS PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL ALSO NOTIFY AFFECTED UTILITY COMPANIES AT LEAST 48 HOURS PRIOR TO THE START OF CONSTRUCTION ADJACENT TO THE KNOWN UTILITY LINES.
21. TESTING OF FACILITIES:
  - A) THE CONTRACTOR SHALL NOTIFY THE DISTRICT A MINIMUM OF 48 HOURS AND A MAXIMUM OF 96 HOURS PRIOR TO THE START OF ANY TESTING.
  - B) ALL SECTIONS OF WATER LINE ARE TO MEET THE FOLLOWING PRESSURE TESTING REQUIREMENTS
    - TEST 100 % OF ALL LINES.
    - MUST PASS PRESSURE TEST TO 200 PSI FOR TWO HOURS (UNLESS OTHERWISE APPROVED ON THE PLANS).
  - C) ALL SANITARY SEWER FACILITIES ARE TO MEET THE FOLLOWING TESTING REQUIREMENTS
    - ALL LINES SHALL BE JET CLEANED PRIOR TO VACUUM OR PRESSURE TESTING.
    - ALL MANHOLES SHALL BE VACUUM TESTED WITH DISTRICT STAFF PRESENT PRIOR TO CCTV INSPECTION.
    - SEWER MAINS TO BE PRESSURE TEST PRIOR TO CCTV INSPECTION.
    - ALL LINES SHALL BE CCTV INSPECTED AND VIDEO SHALL TO BE SUBMITTED TO THE DISTRICT FOR REVIEW AND APPROVAL.
22. PRELIMINARY ACCEPTANCE SHALL BE DEFINED AS THE POINT IN TIME THAT THE DISTRICT ACCEPTS THE FACILITY FOR USE. ALL SURFACE IMPROVEMENTS AND RESTORATION SHALL BE COMPLETED WITHIN 30 DAYS OF COMMENCEMENT. SHOULD THE CONTRACTOR FAIL TO COMPLETE ALL SURFACE IMPROVEMENTS AND RESTORATION WITHIN 30 DAYS OF COMMENCEMENT OF SERVICE, THE DISTRICT, AT THEIR DISCRETION, MAY ELECT TO COMPLETE THE IMPROVEMENTS AT THE CONTRACTOR'S COST.
23. FINAL ACCEPTANCE BY THE DISTRICT OF ANY LINE OR SYSTEM SHALL NOT OCCUR UNTIL COMPLETION OF FINAL ASPHALT LAYERS AND/OR FINAL COMPLETION AND/OR RESTORATION OF ALL SURFACE IMPROVEMENTS. THE WARRANTY PERIOD FOR ALL FACILITIES PRIOR TO FINAL ACCEPTANCE SHALL BE 24 MONTHS COMMENCING AFTER PRELIMINARY ACCEPTANCE.
24. ACCEPTANCE:
  - A) THE DISTRICT MAY GIVE PRELIMINARY ACCEPTANCE ONCE ALL OF THE TESTS ON ALL THE LINES HAVE BEEN COMPLETED AND A WALK-THRU HAS OCCURRED.
  - B) A SECOND ACCEPTANCE MAY OCCUR ONCE FIRST LIFT OF ASPHALT GOES DOWN AND A SECOND WALK-THRU OF THE SYSTEM OCCURS. IF ALL FACILITIES ARE CLEAN AND ACCESSIBLE, A FINAL ACCEPTANCE MAY OCCUR (THE DISTRICT MAY REQUIRE CLEANING AND RE-VIDEO OF THE SYSTEM, DEPENDING ON THE SEVERITY OF THE CONTAMINATION).
25. ALL WATER AND SEWER MAINS, INCLUDING SERVICE LINES, SHALL HAVE "AS-BUILT" DRAWINGS PREPARED AND APPROVED PRIOR TO PRELIMINARY ACCEPTANCE BY THE DISTRICT.
26. ALL COMMERCIAL/BUSINESS DEVELOPMENTS SHALL HAVE AN EIGHT INCH (MN.) WATER MAIN LOOPED THROUGH THE PROPOSED PROPERTY WITH GATE VALVES LOCATED WHERE THE MAIN ENTERS THE PROPERTY LINE. AN EIGHT INCH SEWER MAIN SHALL BE INSTALLED FOR SERVICE TO COMMERCIAL/BUSINESS DEVELOPMENTS, AND A MANHOLE SHALL BE LOCATED WHERE THE MAIN ENTERS THE PROPERTY. THE END OF THE MAINS SHALL BE MARKED WITH THE APPROPRIATE COLORED CARSONITE MARKER ALONG WITH TRACER WIRE.
27. AFTER REVIEW AND APPROVAL OF PLANS FOR THE EXTENSION OF LINES, FACILITIES AND/OR SERVICES, CONSTRUCTION MUST BE COMMENCED WITHIN 18 MONTHS FOR RESIDENTIAL SUBDIVISIONS AND 12 MONTHS FOR ANY COMMERCIAL INSTALLATIONS.
28. INSPECTION FEES: CALL THE DISTRICT (719-495-2500) FOR FEE SCHEDULE.

### WATER SYSTEM INSTALLATION NOTES

29. ALL WATER AND FORCE MAIN PIPE SHALL BE AWWA C900 PVC, OR EQUAL, PRESSURE CLASS 200. ALL WATER AND FORCE MAIN FITTINGS SHALL HAVE MECHANICAL RESTRAINTS AND THRUST BLOCKS. ALL WATER AND FORCE MAIN PIPE SHALL HAVE A MINIMUM COVER DEPTH OF FIVE AND ONE-HALF (5.5) FEET.
30. ALL WATER VALVES ASSOCIATED WITH THE POTABLE WATER SYSTEM SHALL BE OPEN CLOCKWISE. ALL VALVES INSTALLED IN LANDSCAPED AREAS AND/OR NOT WITHIN PAVED STREETS SHALL BE MARKED WITH CARSONITE MARKERS. ALL VALVES ASSOCIATED WITH THE RAW WATER SYSTEM SHALL BE OPEN COUNTERCLOCKWISE AND MARKED WITH CARSONITE MARKERS AS APPLICABLE.
31. THE DEVELOPER OR HIS ENGINEER SHALL LOCATE ALL FIRE HYDRANTS AND SERVICE STUB OUTS FOR FUTURE DEVELOPMENT. ANY REQUIRED REALIGNMENT (HORIZONTAL OR VERTICAL), SHALL BE AT THE EXPENSE OF THE DEVELOPER. FIRE HYDRANT LOCATION SHALL BE REVIEWED AND APPROVED BY THE APPLICABLE FIRE AUTHORITY.
32. FIRE HYDRANTS SHALL BE OPEN RIGHT WITH 7/8" X 7/8" SQUARE TAPERED ALONG WITH SERVICE CAPS. LUBRICATION TYPE: (GREASE). ACCEPTABLE BRANDS ARE AMERICAN AWK, SERIES 2700 (MODERN) AND MUELLER SUPER CENTURION 200.
33. ALL MAIN LINES (PVC & DUCTILE IRON) SHALL BE INSTALLED WITH COATED #12 TRACER WIRE WITH TEST STATIONS AT INTERVALS NO GREATER THAN 500 FT. (VALVE BOXES CAN BE USED AT INTERSECTIONS AND SERVICE STUBS).
34. CONTRACTOR SHALL MAKE CONNECTIONS TO EXISTING WATER LINE WITHOUT SHUTDOWN, OR ELSE NOTIFY THE DISTRICT OF ANY SERVICE SHUTDOWNS NECESSARY TO CONNECT TO EXISTING LINES.
35. IRRIGATION SERVICES SHALL HAVE A STOP AND WASTE CURB STOP VALVE INSTALLED ALONG WITH TRACER WIRE EXTENDING BACK TO THE MAIN LINE.
36. COMMENCEMENT OF USE OF WATER LINES AND/OR SYSTEMS:
  - A) NO WATER FACILITY SHALL BE PLACED IN SERVICE UNTIL AFTER THE COMPLETION OF ALL PRESSURE TESTING, FLUSHING, BAC-T TESTING, COMPACTION TESTING, AND AS-BUILT DRAWINGS ARE SUBMITTED AND APPROVED BY THE DISTRICT.
  - B) NO WATER FACILITY SHALL BE PLACED IN SERVICE UNTIL ALL SERVICE LINES ARE COMPLETED AND THE FIRST LIFT OF ASPHALT IS COMPLETED OVER THE LINE. IN THE CASE WHERE NO ASPHALT IS TO BE PLACED OVER THE LINE, SURFACE IMPROVEMENTS SHALL BE COMPLETED PRIOR TO USE OF THE FACILITY.
  - C) ALL EASEMENTS (PLATTED OR DEEDED) ARE DEDICATED, EXECUTED BY THE DISTRICT, AND RECORDED.

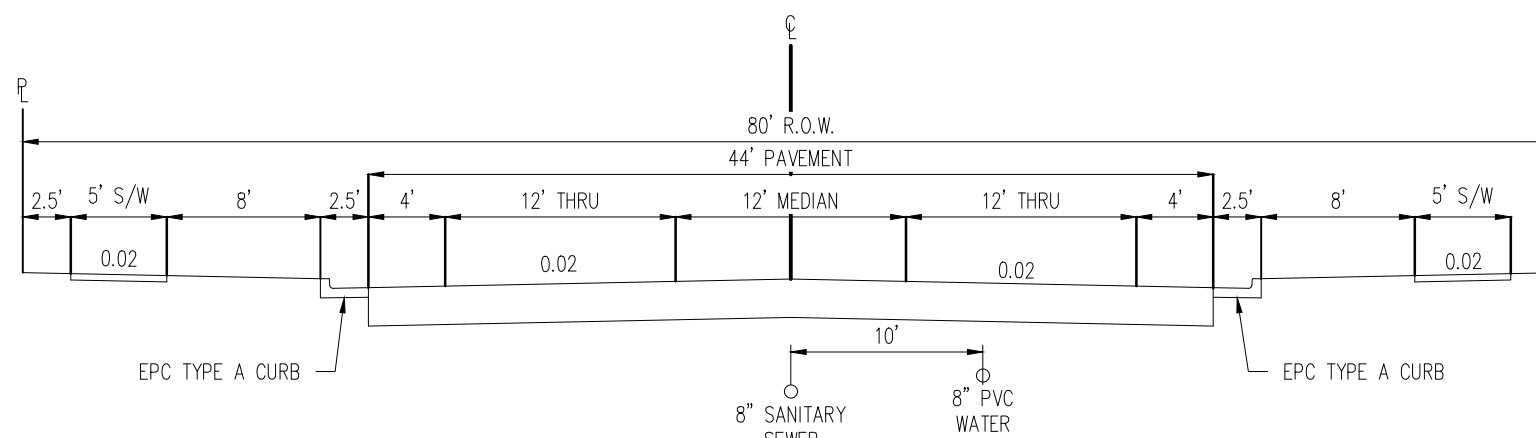
### WASTEWATER SYSTEM INSTALLATION NOTES

37. SANITARY SEWER LENGTHS ARE MH CENTER-MH CENTER. ALL SANITARY SEWER PIPES SHALL BE SDR 35 PVC OR EQUAL. SEWER LINES MAY NOT EXCEED 7% GRADE FOR ANY SIZE WITHOUT PRIOR APPROVAL OF THE DISTRICT. ALL NEWLY CONSTRUCTED RESIDENTIAL SANITARY SEWER TAPS SHALL USE PRE-MANUFACTURED IN-LINE PVC PUSH-ON WYES. TAPPING SADDLES MAY ONLY BE USED FOR TAPPING PRE-EXISTING MAINS.
38. ALL SANITARY SEWER MANHOLES SHALL BE WRAPPED WITH RU116 - RUBBER-NEK JOINT WRAP OR EQUIVALENT AND COATED.
39. COMMENCEMENT OF USE OF SEWER LINES AND/OR SYSTEMS:
  - A) NO SANITARY SEWER FACILITY SHALL BE PLACED IN SERVICE UNTIL THE COMPLETION OF ALL JET CLEANING, PRESSURE TESTING, VACUUM TESTING, CCTV INSPECTION, COMPACTION TESTING, AND AS-BUILT DRAWINGS ARE SUBMITTED AND APPROVED BY THE DISTRICT.
  - B) NO SANITARY SEWER FACILITY SHALL BE PLACED IN SERVICE UNTIL ALL SERVICE LINES ARE COMPLETED AND THE FIRST LIFT OF ASPHALT IS COMPLETED OVER THE LINE. IN THE CASE WHERE NO ASPHALT IS TO BE PLACED OVER THE LINE, ANY REQUIRED SURFACE IMPROVEMENTS SHALL BE COMPLETED PRIOR TO USE OF THE FACILITY.
  - C) ALL NECESSARY EASEMENTS (PLATTED OR DEEDED) ARE DEDICATED, EXECUTED BY THE DISTRICT, AND RECORDED.
- D) DOWNSTREAM PLUG CAN BE REMOVED ONCE FIRST LIFT OF ASPHALT IS DOWN AND THE ABOVE REQUIREMENTS ARE MET.

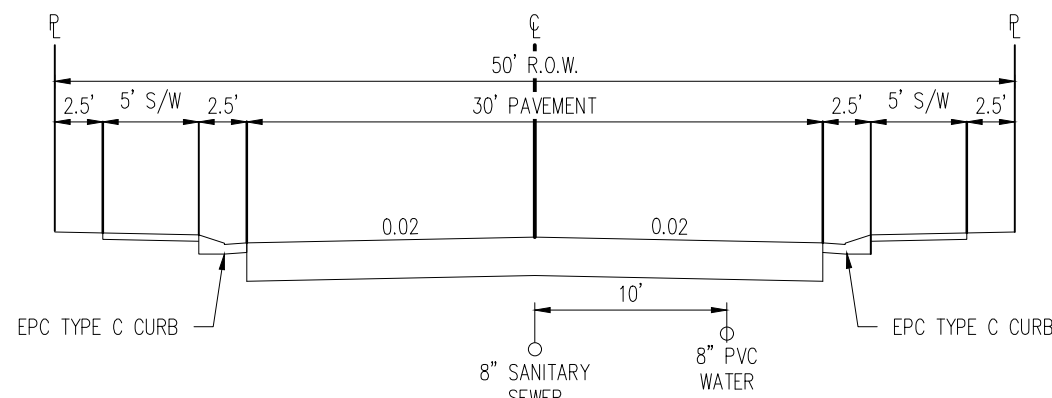
THE ABOVE GUIDELINES ARE SUBJECT TO CHANGE AT ANY TIME.



VICINITY MAP  
NTS



TYPICAL STREET SECTION - BENT GRASS MEADOWS DRIVE  
URBAN NON-RESIDENTIAL COLLECTOR ROADWAY  
N.T.S.



TYPICAL STREET SECTION  
URBAN LOCAL ROADWAY  
N.T.S.

Sheet List Table			Sheet Title
1	C0.00		COVER SHEET
2	C1.00		OVERALL UTILITY PLAN
3	C1.01		SANITARY LAYOUT PLAN
4	C1.02		SANITARY LAYOUT PLAN
5	C1.03		SANITARY LAYOUT PLAN
6	C1.04		SANITARY LAYOUT PLAN
7	C1.05		SANITARY LAYOUT PLAN
8	C2.00		WATER LAYOUT PLAN
9	C2.01		WATER LAYOUT PLAN
10	C2.02		WATER LAYOUT PLAN
11	C2.03		WATER LAYOUT PLAN
12	C3.00		AVENUE ROAD SANITARY PLAN & PROFILE
13	C3.01		BOSSETT DRIVE SANITARY PLAN & PROFILE
14	C3.02		BENT GRASS MEADOWS DRIVE SANITARY PLAN & PROFILE
15	C3.03		BENT GRASS MEADOWS DRIVE SANITARY PLAN & PROFILE
16	C3.04		BENT GRASS MEADOWS DRIVE SANITARY PLAN & PROFILE
17	C3.05		BERWYN DRIVE SANITARY PLAN & PROFILE
18	C3.06		BERWYN DRIVE & JENNY COURT SANITARY PLAN & PROFILE
19	C3.07		BERWYN DRIVE SANITARY PLAN & PROFILE
20	C3.08		BERWYN DRIVE SANITARY PLAN & PROFILE
21	C3.09		FEATHER REED DRIVE SANITARY PLAN & PROFILE
22	C3.10		FEATHER REED DRIVE & CONDOGRASS ROAD SANITARY PLAN & PROFILE
23	C3.11		WILMORE DRIVE SANITARY PLAN & PROFILE
24	C3.12		THEODOR COURT & SILKY THREAD ROAD SANITARY PLAN & PROFILE
25	C3.13		RIGHT OF WAY CONNECTION SANITARY PLAN & PROFILE
26	C3.14		RIGHT OF WAY CONNECTION SANITARY PLAN & PROFILE
27	C4.00		UTILITY DETAILS
28	C4.01		UTILITY DETAILS
29	C4.02		UTILITY DETAILS
30	C4.03		UTILITY DETAILS
31	C4.04		UTILITY DETAILS

### WATER AND SEWER MAIN EXTENSIONS:

ANY CHANGES OR ALTERATIONS AFFECTING THE GRADE, ALIGNMENT, ELEVATION AND/OR DEPTH OF COVER OF ANY WATER OR SEWER MAINS OR OTHER APPURTENANCE SHOWN ON THIS DRAWING SHALL BE THE RESPONSIBILITY OF THE OWNER/DEVELOPER. THE OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR ALL OPERATIONAL DAMAGES AND DEFECTS IN INSTALLATION AND MATERIAL FOR MAINS AND SERVICES FROM THE DATE OF APPROVAL UNTIL FINAL ACCEPTANCE IS ISSUED.

SIGNED \_\_\_\_\_ DATE \_\_\_\_\_

PRINT NAME \_\_\_\_\_

DBA \_\_\_\_\_

ADDRESS \_\_\_\_\_

\_\_\_\_\_

### FIRE AUTHORITY APPROVAL:

THE NUMBER OF FIRE HYDRANTS AND HYDRANT LOCATIONS SHOWN ON THIS WATER INSTALLATION PLAN ARE CORRECT AND ADEQUATE TO SATISFY THE FIRE PROTECTION REQUIREMENTS AS SPECIFIED BY THE FIRE DISTRICT SERVING THE PROPERTY NOTED ON THE PLANS.

FIRE PROTECTION DISTRICT \_\_\_\_\_

SIGNED \_\_\_\_\_ DATE \_\_\_\_\_

FIRE PROTECTION DISTRICT \_\_\_\_\_

### DISTRICT APPROVALS:

THE WOODMEN HILLS METROPOLITAN DISTRICT RECOGNIZES THE DESIGN ENGINEER AS HAVING RESPONSIBILITY FOR THE DESIGN AND HAS LIMITED ITS SCOPE OF REVIEW ACCORDINGLY.

### WOODMEN HILLS METROPOLITAN DISTRICT

#### WATER DESIGN APPROVAL

DATE: \_\_\_\_\_ BY: \_\_\_\_\_

PROJECT NO. \_\_\_\_\_

IN CASE OF ERRORS OR OMISSIONS WITH THE WATER DESIGN AS SHOWN ON THIS DOCUMENT THE STANDARDS AS DEFINED IN THE "RULES AND REGULATIONS FOR INSTALLATION OF WATER MAINS AND SERVICES" SHALL RULE.

APPROVAL EXPIRES 180 DAYS FROM DESIGN APPROVAL

THE WOODMEN HILLS METROPOLITAN DISTRICT RECOGNIZES THE DESIGN ENGINEER AS HAVING RESPONSIBILITY FOR THE DESIGN AND HAS LIMITED ITS SCOPE OF REVIEW ACCORDINGLY.

### WOODMEN HILLS METROPOLITAN DISTRICT

#### WASTEWATER DESIGN APPROVAL

DATE: \_\_\_\_\_ BY: \_\_\_\_\_

PROJECT NO. \_\_\_\_\_

IN CASE OF ERRORS OR OMISSIONS WITH THE WATER DESIGN AS SHOWN ON THIS DOCUMENT THE STANDARDS AS DEFINED IN THE "RULES AND REGULATIONS FOR INSTALLATION OF WASTEWATER MAINS AND SERVICES" SHALL RULE.

APPROVAL EXPIRES 180 DAYS FROM DESIGN APPROVAL

### CAUTION - NOTICE TO CONTRACTOR

1. ALL UTILITY LOCATIONS SHOWN ARE BASED ON MAPS PROVIDED BY THE APPROPRIATE UTILITY COMPANY AND FIELD SURFACE EVIDENCE AT THE TIME OF SURVEY AND IS TO BE CONSIDERED AN APPROXIMATE LOCATION ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE FIELD LOCATION OF ALL UTILITIES, PUBLIC OR PRIVATE, WHETHER SHOWN ON THE PLANS OR NOT, PRIOR TO CONSTRUCTION. REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO CONSTRUCTION.
2. WHERE A PROPOSED UTILITY CROSSES AN EXISTING UTILITY, IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF SUCH EXISTING UTILITY, EITHER THROUGH POT-HOLING OR ALTERNATIVE METHOD. REPORT INFORMATION TO THE ENGINEER PRIOR TO CONSTRUCTION.



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**Galloway**

1755 Telstar Drive, Suite 107  
Colorado Springs, CO 80920  
719.900.7220  
GallowayUS.com

### LIST OF CONTACTS

#### APPLICANT/DEVELOPER

CHALLENGER HOMES, INC.  
13570 NORTHGATE ESTATES DR.  
COLORADO SPRINGS, CO 80921  
TEL: (719) 598-5190  
CONTACT: JIM BYERS  
EMAIL: JIMBYERS@CHALLENGERHOMES.COM

#### ENGINEER

GALLOWAY & COMPANY, INC.  
1755 TELSTAR DRIVE, SUITE 107  
COLORADO SPRINGS, COLORADO 80920  
TEL: (719) 900-7220  
CONTACT: GRANT DENNIS, P.E.  
EMAIL: GRANTDENNIS@GALLOWAYUS.COM

#### COUNTY ENGINEER

EL PASO COUNTY DEPT. OF TRANSPORTATION  
2880 INTERNATIONAL CIRCLE  
COLORADO SPRINGS, COLORADO 80910  
TEL: (719) 520-4882  
CONTACT: JENNIFER IRVINE, P.E.  
EMAIL: \_\_\_\_\_

#### SURVEYOR

GALLOWAY & COMPANY, INC.  
1755 TELSTAR DRIVE, SUITE 107  
COLORADO SPRINGS, COLORADO 80920  
TEL: (719) 900-7220  
CONTACT: LYLE BESSEGGER  
EMAIL: LYLEBESSEGGER@GALLOWAYUS.COM

#### UTILITY REVIEW - WATER/WASTEWATER

WOODMEN HILLS METRO DISTRICT  
11720 WOODMEN HILLS DRIVE  
FALCON, COLORADO 80831  
TEL: (719) 495-2500  
CONTACT: \_\_\_\_\_  
EMAIL: \_\_\_\_\_

#### UTILITY REVIEW - GAS

CITY OF COLORADO SPRINGS  
101 SOUTH CONEJOS STREET  
COLORADO SPRINGS, COLORADO 80903  
TEL: (719) 468-3574  
CONTACT: \_\_\_\_\_  
EMAIL: \_\_\_\_\_

#### FIRE DISTRICT:

FALCON FIRE PROTECTION DISTRICT  
7030 N. MERIDIAN RD.  
FALCON, COLORADO 80831  
TEL: (719) 495-4050  
CONTACT: \_\_\_\_\_  
EMAIL: \_\_\_\_\_

#### ELECTRIC

MOUNTAIN VIEW ELECTRIC  
P.O. BOX 1460  
LIMON, COLORADO 80828  
TEL: (719) 495-2283  
CONTACT: \_\_\_\_\_  
EMAIL: \_\_\_\_\_

#### TELEPHONE

CENTURY LINK  
(LOCATORS) 811

AT & T

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CONSTRUCTION PLANS  
BENT GRASS RESIDENTIAL FILING NO. 2

BENT GRASS MEADOWS DRIVE  
FALCON, CO 80831 EL PASO COUNTY

#	Date	Issue / Description	Init.
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Project No:	CLH-14.20
Drawn By:	JDP
Checked By:	RGD
Date:	7/29/2019

### COVER SHEET

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Sheet 1 of 31





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PROPERTY BOUNDARY

EXISTING STORM SEWER

PROPOSED STORM SEWER

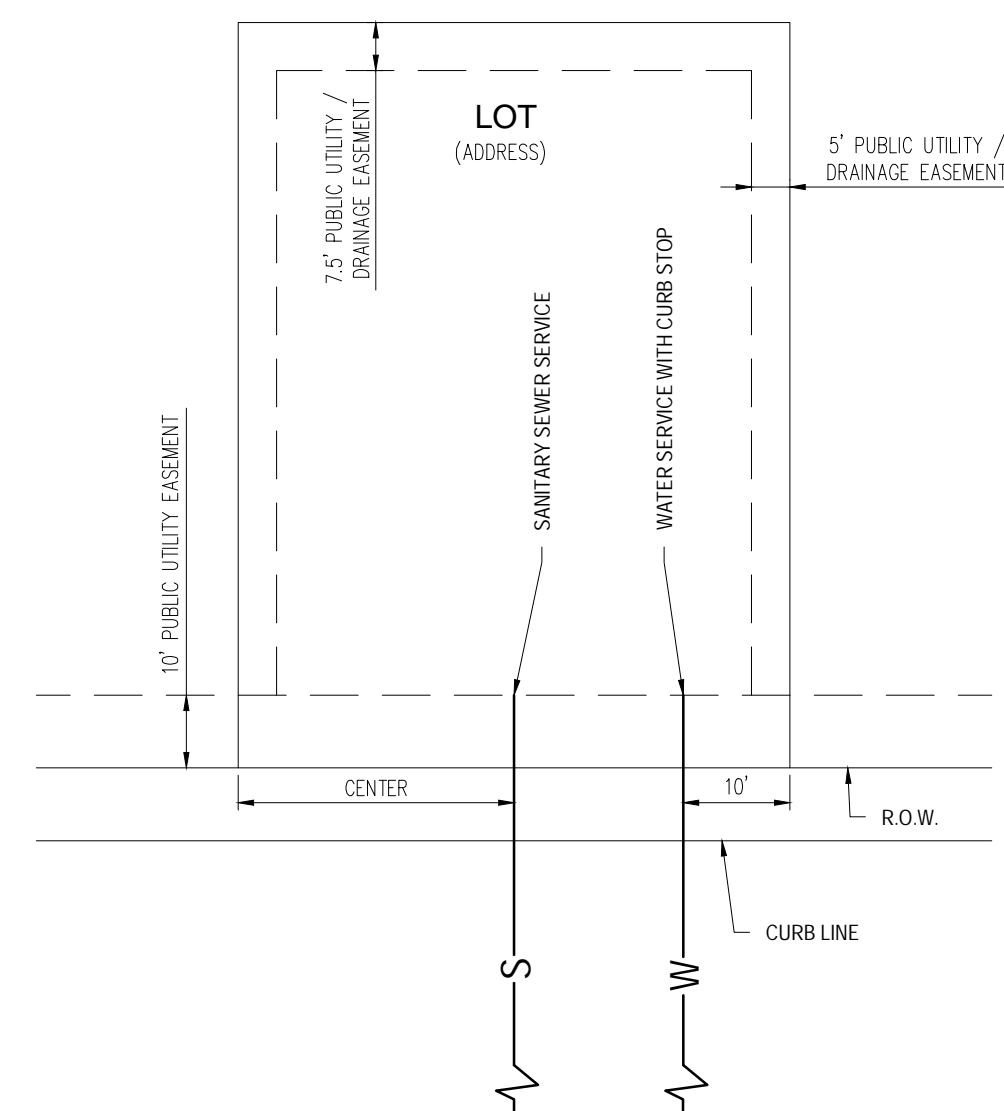
PROPOSED WATER LINE

PROPOSED HYDRANT AND FITTINGS

PROPOSED SANITARY SEWER

PROPOSED SANITARY MANHOLE

1. CONTRACTOR TO OBTAIN WORK IN THE ROW PERMIT FROM EL PASO COUNTY PRIOR TO CONSTRUCTION.
2. CONTRACTOR TO POTHOLE AND VERIFY EXISTENCE OF OTHER UTILITIES WITHIN ANY PUBLIC RIGHT OF WAY.
3. 20" UTILITY EASEMENT TO BE GRANTED PRIOR TO CONSTRUCTION.
4. CONTRACTOR TO MAINTAIN 5' OR MINIMUM COVER OVER ALL WATER MAINS CONSTRUCTED.
5. ALL VALVES SHOWN FOR SCHEMATIC PURPOSES ONLY. NO VALVES SHALL BE INSTALLED IN CURB AND GUTTER OR CROSSINGS.
6. ALL SEWER SERVICE LOCATIONS TO BE 10' FROM "DOWNSTREAM" PROPERTY LINE AND EXTENDED THROUGH THE 10' PUBLIC UTILITY EASEMENT.
7. SEWER SERVICE TO BE PLACED APPROXIMATELY IN THE MIDDLE OF THE LOT AND BE EXTENDED THROUGH THE 10' PUBLIC UTILITY EASEMENT.
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9. CURB STOPS ARE NOT TO BE INSTALLED IN CONCRETE CURB, CROSSPANS, SIDEWALKS, OR DRIVEWAYS.
10. SANITARY SEWER MAINLINE DEPTH: (10" DEPTH). NO BASEMENTS ALLOWED UNLESS PUMPED TO MAIN ELEVATION.
11. LOTS WITH FRONTAGE OF 40' OR LESS, WATER SERVICE LOCATION WILL BE 2' OFF THE DOWN HILL LOT CORNER.
12. SEE PLAN FOR CORNER LOT LOCATIONS.



CAUTION - NOTICE TO CONTRACTOR

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Know what's below.  
Call before you dig.

CONSTRUCTION PLANS  
BENT GRASS RESIDENTIAL FILLING

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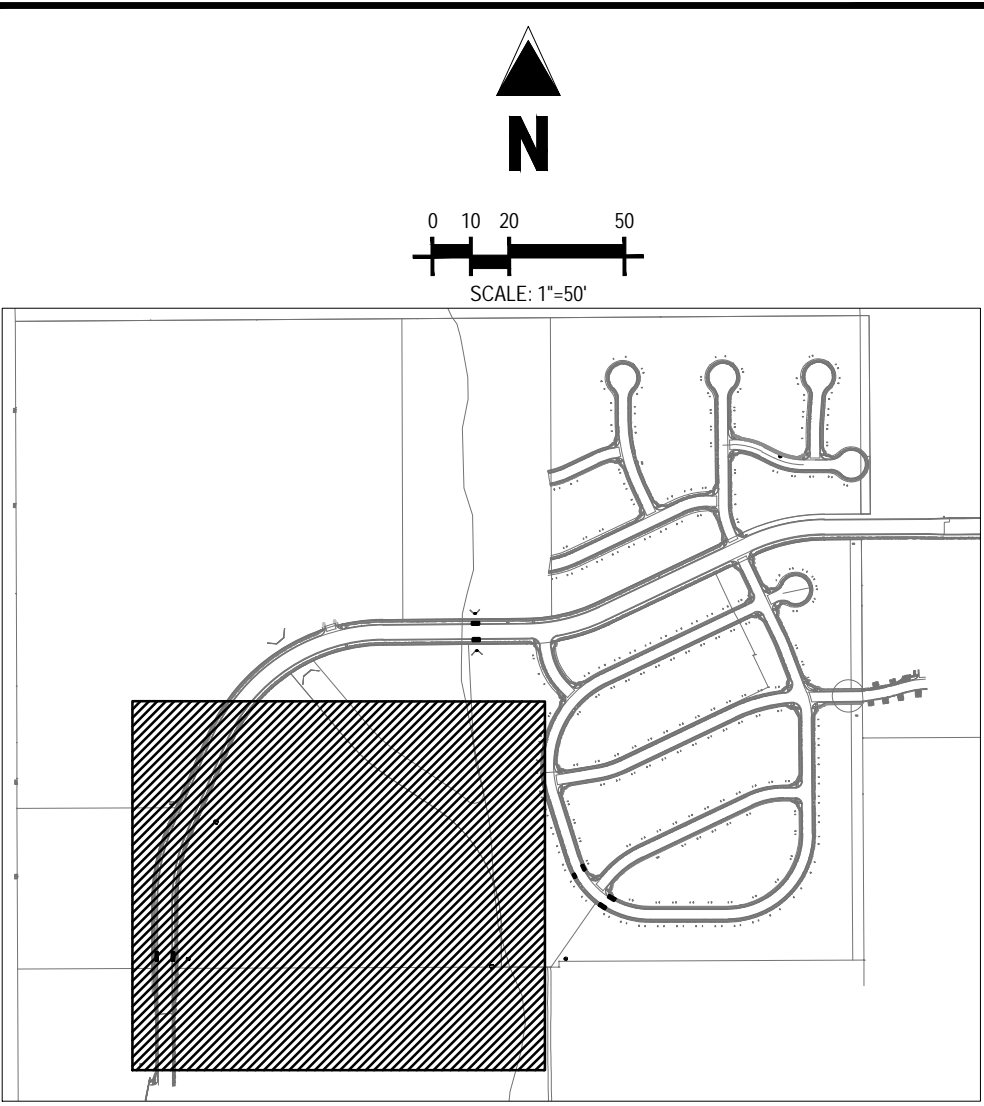
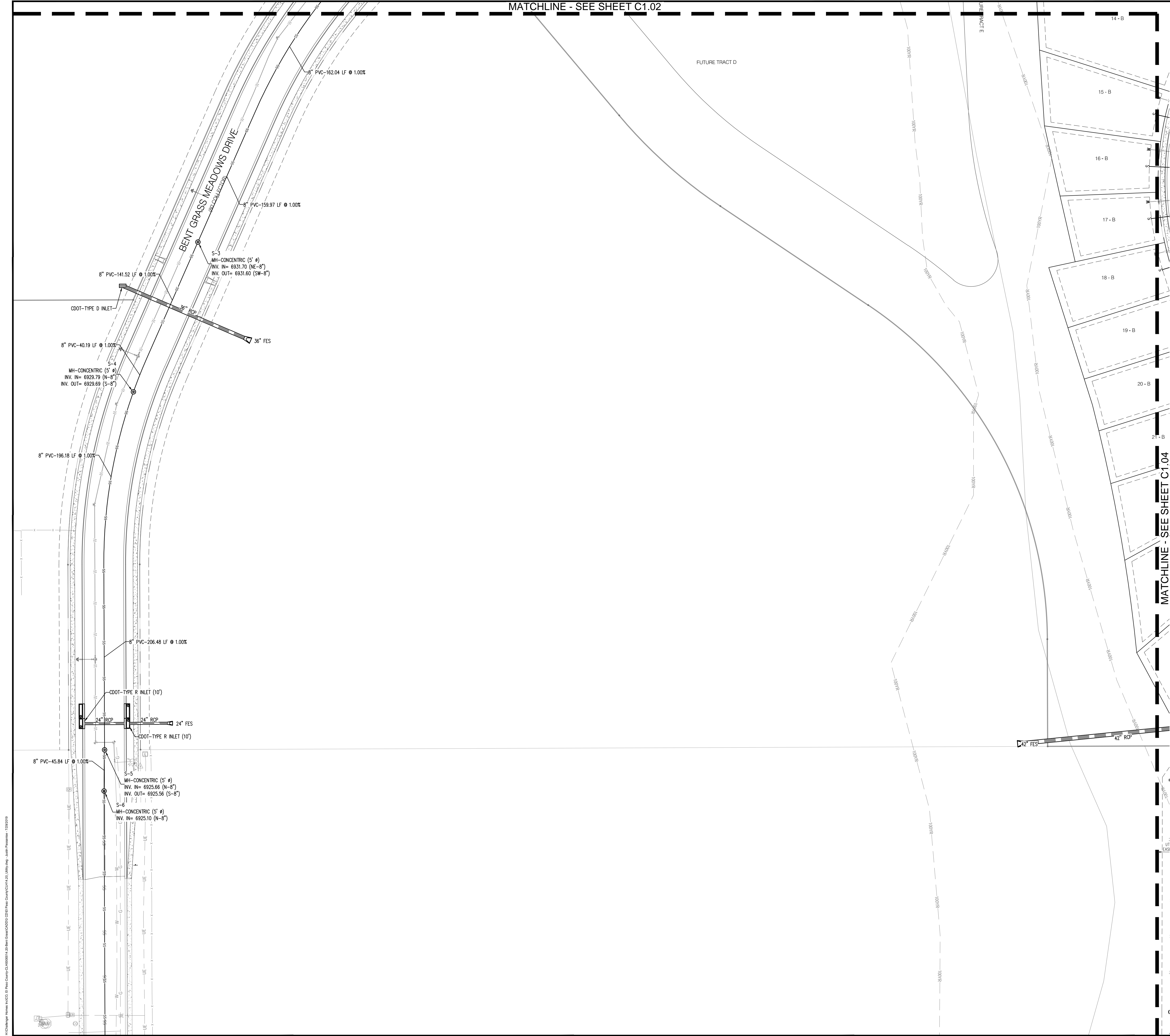
Project No:	CLH-14.20
Drawn By:	JDP
Checked By:	RGD
Date:	7/29/2019

OVERALL UTILITY PLAN

C1.00

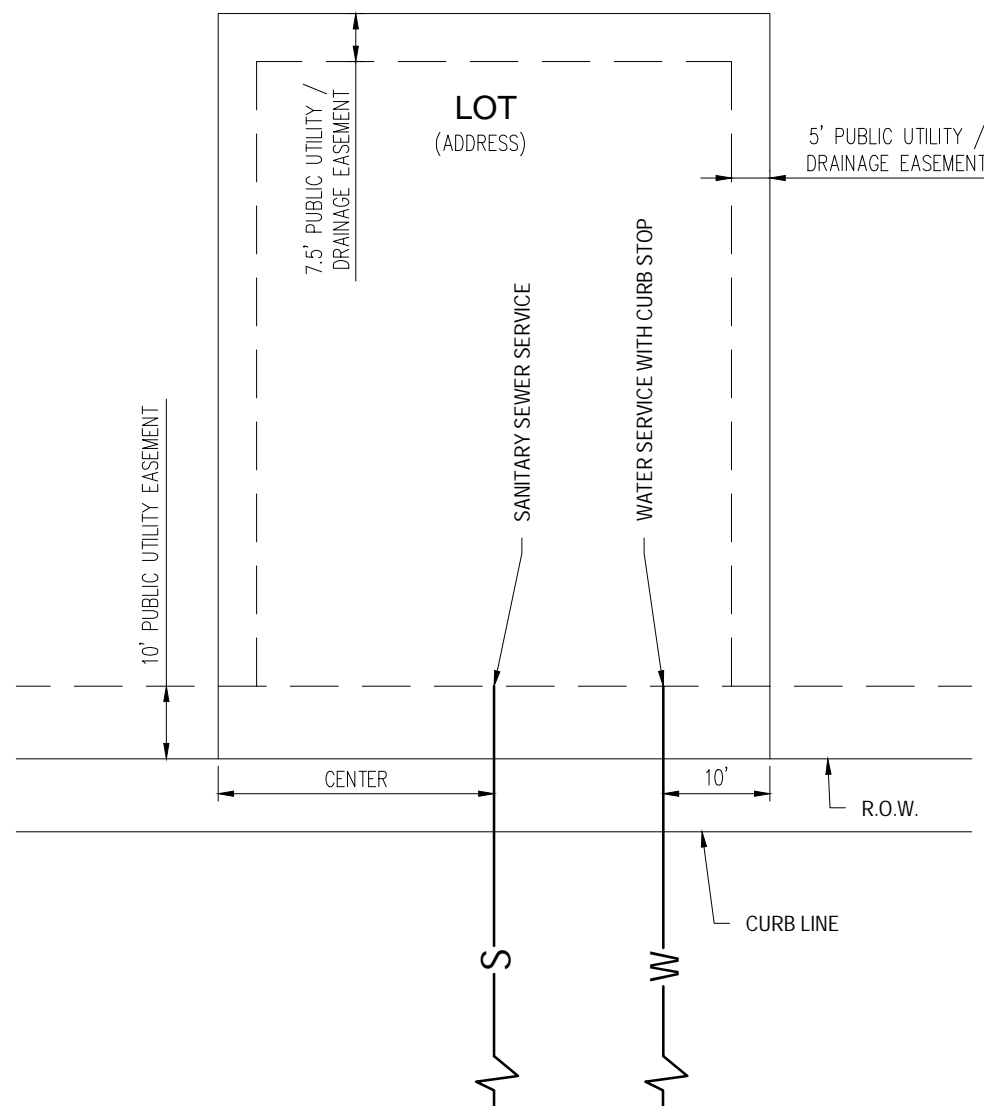
Sheet 2 of 31





UTILITY LEGEND	
	PROPERTY BOUNDARY
	EXISTING STORM SEWER
	PROPOSED STORM SEWER
	PROPOSED WATER LINE
	PROPOSED HYDRANT AND FITTINGS
	PROPOSED SANITARY SEWER
	PROPOSED SANITARY MANHOLE
	100 YEAR FLOOD PLAIN
	EXISTING OVERHEAD ELECTRIC LINE

- GENERAL NOTES:**
- CONTRACTOR TO OBTAIN WORK IN THE ROW PERMIT FROM EL PASO COUNTY PRIOR TO CONSTRUCTION.
  - CONTRACTOR TO POTHOLE AND VERIFY EXISTENCE OF OTHER UTILITIES WITHIN ANY PUBLIC RIGHT OF WAYS.
  - 20' UTILITY EASEMENT TO BE GRANTED PRIOR TO CONSTRUCTION.
  - CONTRACTOR TO MAINTAIN 5.0' MINIMUM COVER OVER ALL WATER MAINS CONSTRUCTED.
  - ALL VALVES SHOWN FOR SCHEMATIC PURPOSES ONLY. NO VALVES SHALL BE INSTALLED IN CURB AND GUTTER OR CROSSPANS.
  - STANDARD WATER SERVICE LOCATIONS TO BE 10' FROM "DOWNSTREAM" PROPERTY LINE AND EXTENDED THROUGH THE 10' PUBLIC UTILITY EASEMENT.
  - SEWER SERVICE TO BE PLACED APPROXIMATELY IN THE MIDDLE OF THE LOT AND BE EXTENDED THROUGH THE 10' PUBLIC UTILITY EASEMENT.
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  - CURB STOPS ARE NOT TO BE INSTALLED IN CONCRETE CURB, CROSSPANS, SIDEWALKS, OR DRIVEWAYS.
  - SANITARY SEWER MAINLINE DEPTH (<10' DEPTH). NO BASEMENTS ALLOWED UNLESS PUMPED TO MAIN ELEVATION.
  - LOTS WITH FRONTAGE OF 40' OR LESS, WATER SERVICE LOCATION WILL BE 2.0' OFF THE DOWN HILL LOT CORNER.
  - SEE PLAN FOR CORNER LOT LOCATIONS.



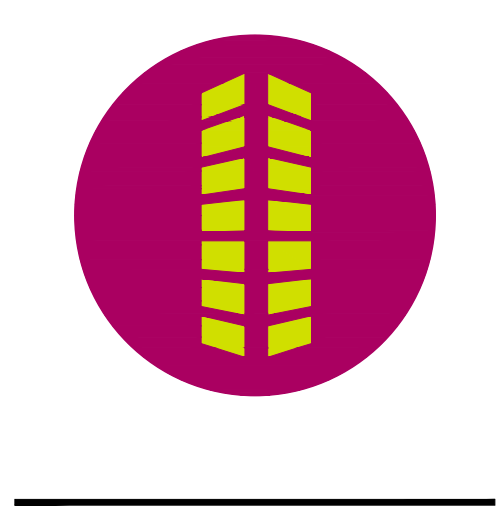
**DETAIL: UTILITY SERVICE LOCATIONS**  
N.T.S.

**CAUTION - NOTICE TO CONTRACTOR**

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**CONSTRUCTION PLANS**  
**BENT GRASS RESIDENTIAL FILING NO. 2**  
  
**BENT GRASS MEADOWS DRIVE**  
**FALCON, CO 80831 EL PASO COUNTY**

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Project No:	CLH-14.20
Drawn By:	JDP
Checked By:	RGD
Date:	7/29/2019

**SANITARY LAYOUT PLAN**



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## CONSTRUCTION PLANS

CONSTRUCTION PLANS  
BENT GRASS RESIDENTIAL FILING NO. 2

BENT GRASS MEADOWS DRIVE  
FALCON, CO 80831 EL PASO COUNTY

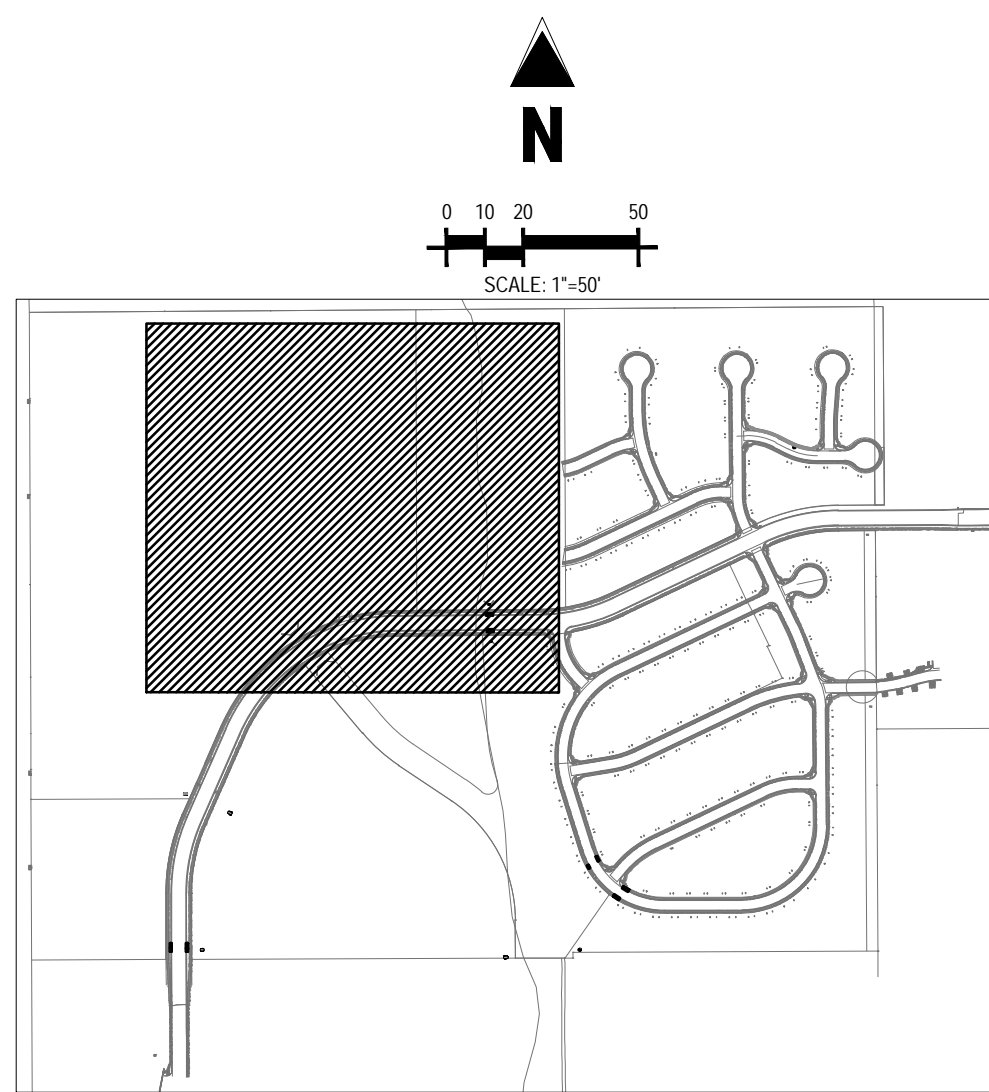
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Project No:	CLH-14.20
Drawn By:	JDP
Checked By:	RGD
Date:	7/29/2019

## SANITARY LAYOUT PLAN

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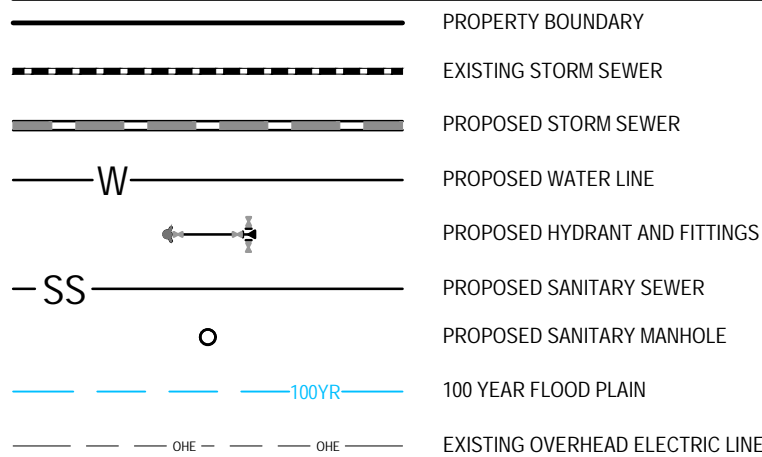
Sheet 4 of 31



## LOCATION MAP

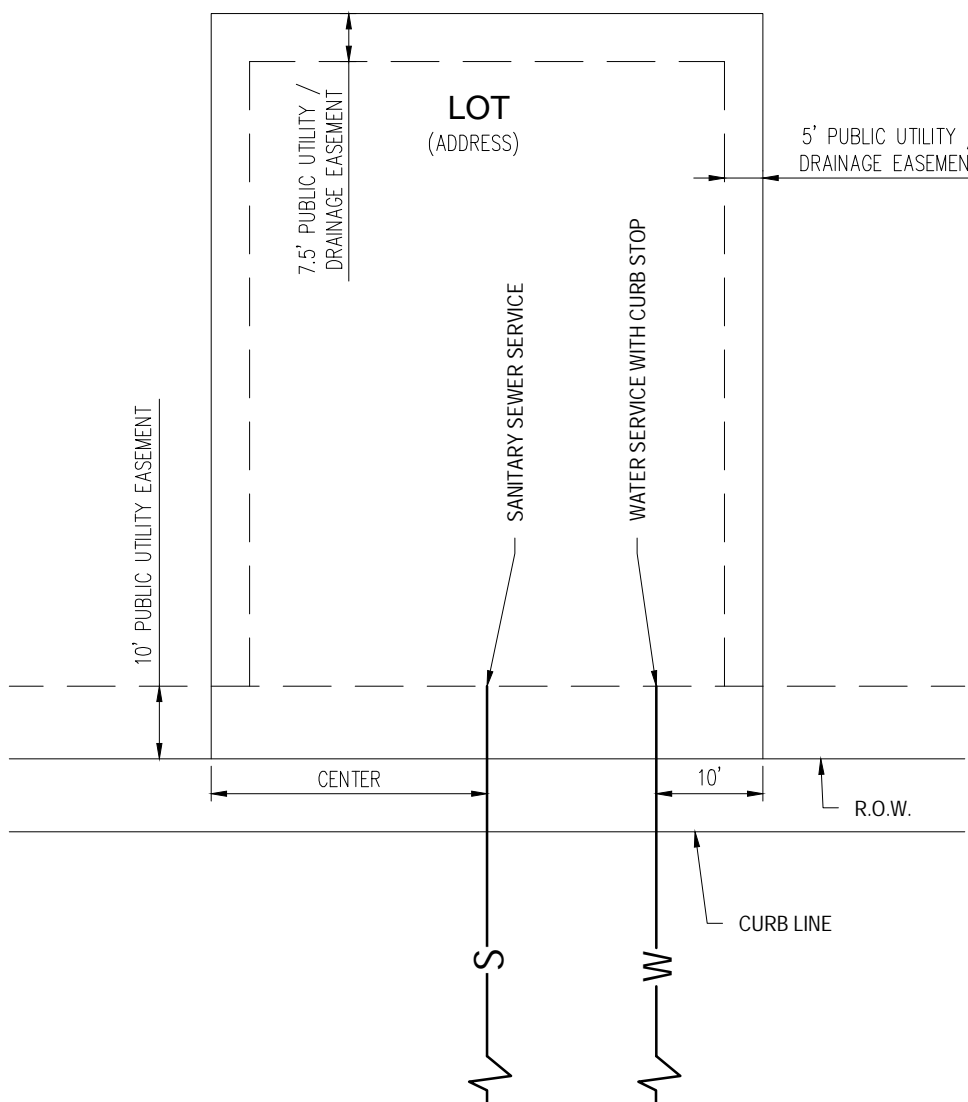
SCALE: 1"=600'

### UTILITY LEGEND



## GENERAL NOTES:

1. CONTRACTOR TO OBTAIN WORK IN THE ROW PERMIT FROM EL PASO COUNTY PRIOR TO CONSTRUCTION.
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8. SERVICES SHALL BE MARKED WITH "X" POST AT TERMINATION POINT FOR LOCATION DURING CONNECTION TO RESIDENCE. POSTS SHALL BE SPRAY-PAINTED BLUE FOR WATER AND GREEN FOR SEWER.
9. CURB STOPS ARE NOT TO BE INSTALLED IN CONCRETE CURB, CROSSPANS, SIDEWALKS, OR DRIVEWAYS.
10. SEWER SERVICE MAINLINE DEPTH (<10' DEPTH) NO BASEMENTS ALLOWED UNLESS PUMPED TO MAIN LEVEL.
11. LOTS WITH FRONTAGE OF 40' OR LESS, WATER SERVICE LOCATION WILL BE 2'0" OFF THE DOWN HILL LOT CORNER.
12. SEE PLAN FOR CORNER LOT LOCATIONS.



### DETAIL: UTILITY SERVICE LOCATIONS

N.T.S

CAUTION - NOTICE TO CONTRACTOR

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W/Challenger Homes Inc/CO, Ill Paso County-CL H0000014, 20-Sant Grass/CAD000 CD/III Paso County/CLH14 20\_Utility.dwg - Justin Passariou - 7/29/2019













CONSTRUCTION PLANS  
BENT GRASS RESIDENTIAL FILING NO. 2

BENT GRASS MEADOWS DRIVE  
FALCON, CO 80831 EL PASO COUNTY

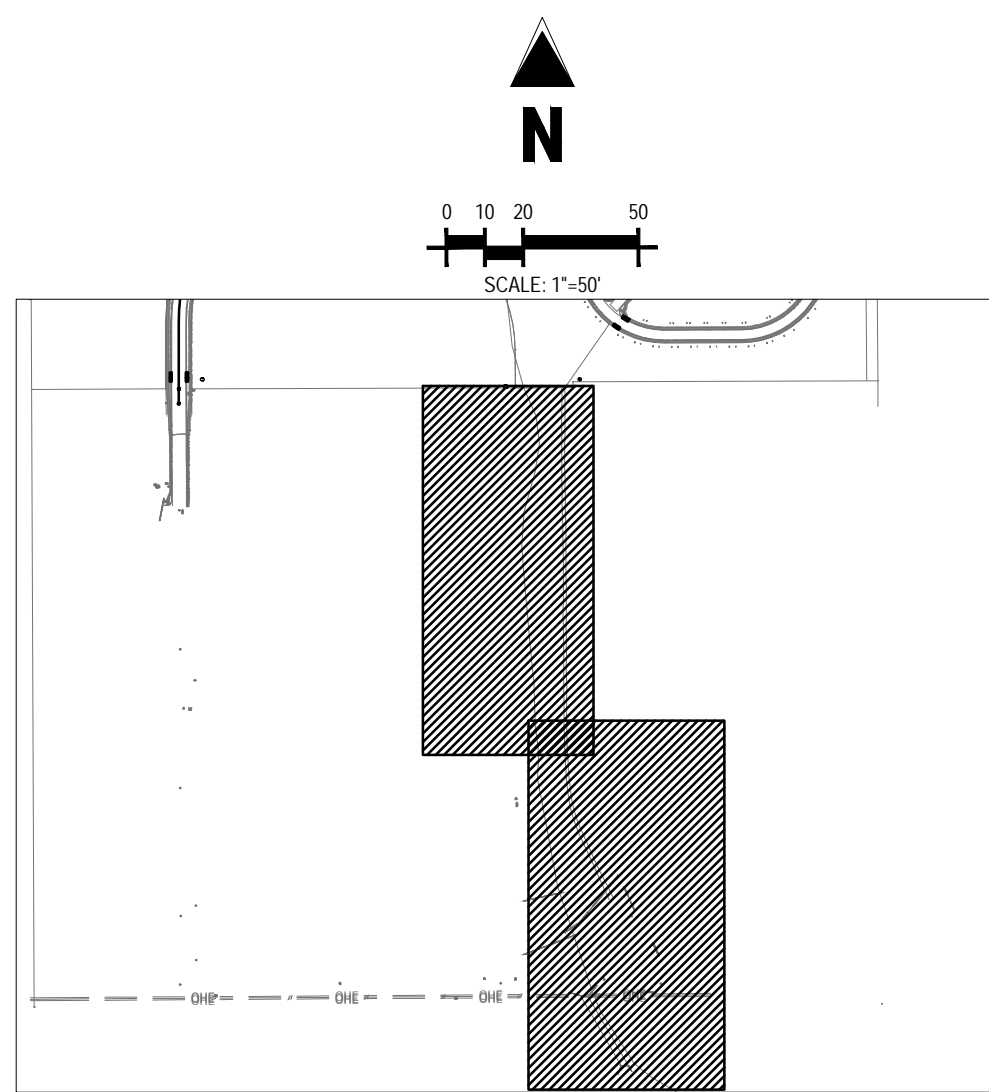
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Project No:	CLH-14.20
Drawn By:	JDP
Checked By:	RGD
Date:	7/29/2019

### SANITARY LAYOUT PLAN

C1.05

Sheet 7 of 31



## LOCATION MAP

SCALE: 1"=600'

### UTILITY LEGEND

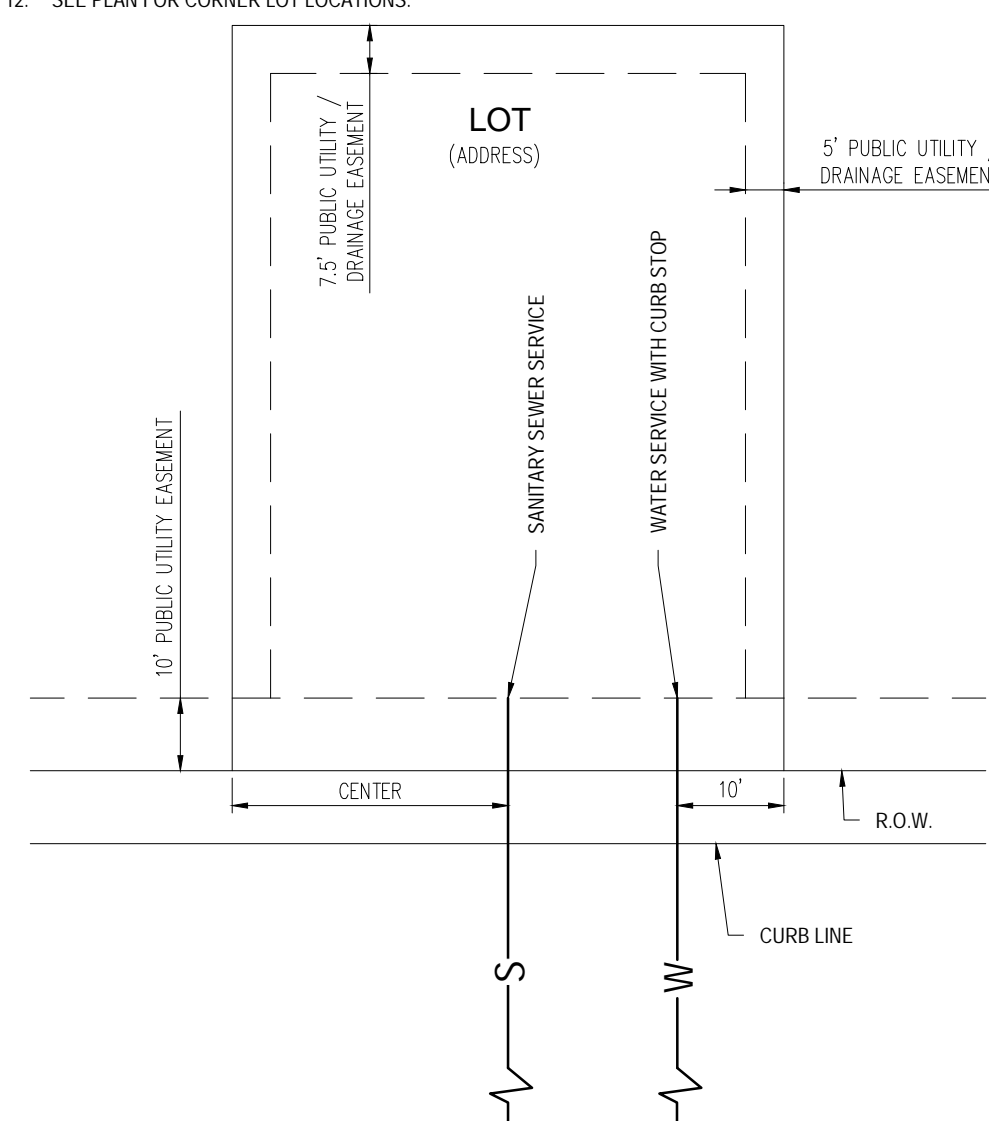
The diagram shows a vertical cross-section of the ground with various utility lines and a property boundary. From top to bottom, the elements are:

- PROPERTY BOUNDARY:** Indicated by a dashed line.
- EXISTING STORM SEWER:** A solid line with a dashed center line.
- PROPOSED STORM SEWER:** A solid line with a dashed center line, located below the existing storm sewer.
- PROPOSED WATER LINE:** A solid line with a dashed center line, located below the proposed storm sewer.
- PROPOSED HYDRANT AND FITTINGS:** Indicated by a symbol consisting of a circle with a cross inside, located below the proposed water line.
- PROPOSED SANITARY SEWER:** A solid line with a dashed center line, located below the proposed hydrant and fittings.
- PROPOSED SANITARY MANHOLE:** Indicated by a circle with a cross inside, located below the proposed sanitary sewer.
- 100 YEAR FLOOD PLAIN:** Indicated by a blue line with a dashed center line, located below the proposed sanitary manhole.
- EXISTING OVERHEAD ELECTRIC LINE:** Indicated by a solid line with a dashed center line, located below the 100 year flood plain.
- EXISTING FEED:** Indicated by a solid line with a dashed center line, located below the existing overhead electric line.

Additional labels include "W" for water line, "SS" for sanitary sewer, and "100YR" for 100 year flood plain.

GENERAL NOTES:

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10. SANITARY SEWER MAINLINE DEPTH (1'-10' DEPTH), NO BASEMENTS ALLOWED UNLESS PUMPED TO MAIN ELEVATION.
11. LOTS WITH FRONTAGE OF 40' OR LESS, WATER SERVICE LOCATION WILL BE 2.0' OFF THE DOWN HILL LOT CORNER.
12. SEE PLAN FOR CORNER LOT LOCATIONS.



DETAIL: UTILITY SERVICE LOCATIONS  
N.T.S.

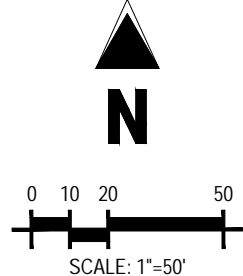
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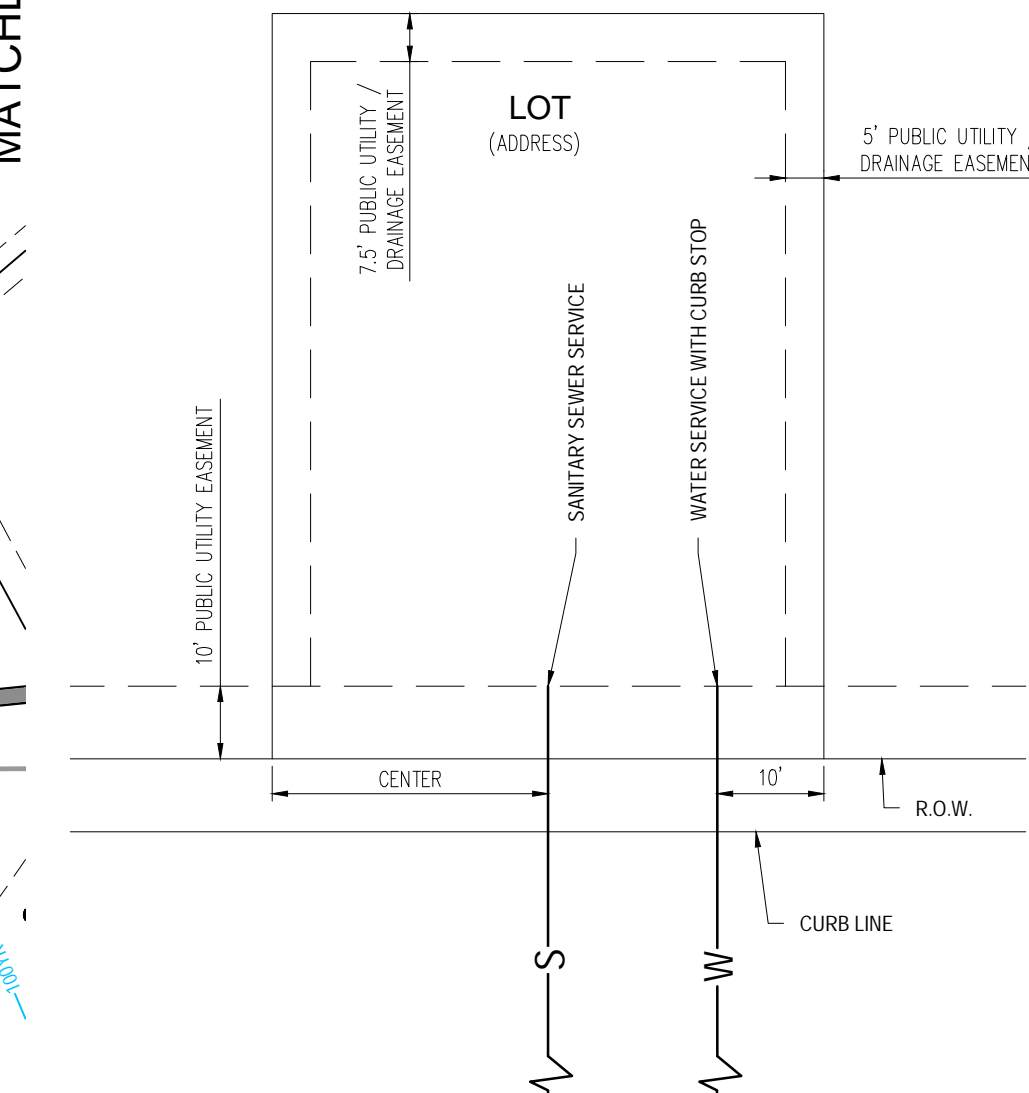
SCALE: 1"=600'

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- 
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- PROPOSED WATER LINE
- PROPOSED HYDRANT AND FITTINGS
- PROPOSED SANITARY SEWER
- PROPOSED SANITARY MANHOLE
- 100' R/W
- EXISTING OVERHEAD ELECTRIC LINE

1. CONTRACTOR TO OBTAIN V

2. CONTRACTOR TO POTHOLE AND VERIFY EXISTENCE OF OTHER UTILITIES WITHIN ANY PUBLIC RIGHT OF WAY.
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DETAIL: UTILITY SERVICE LOCATIONS  
N.T.S.

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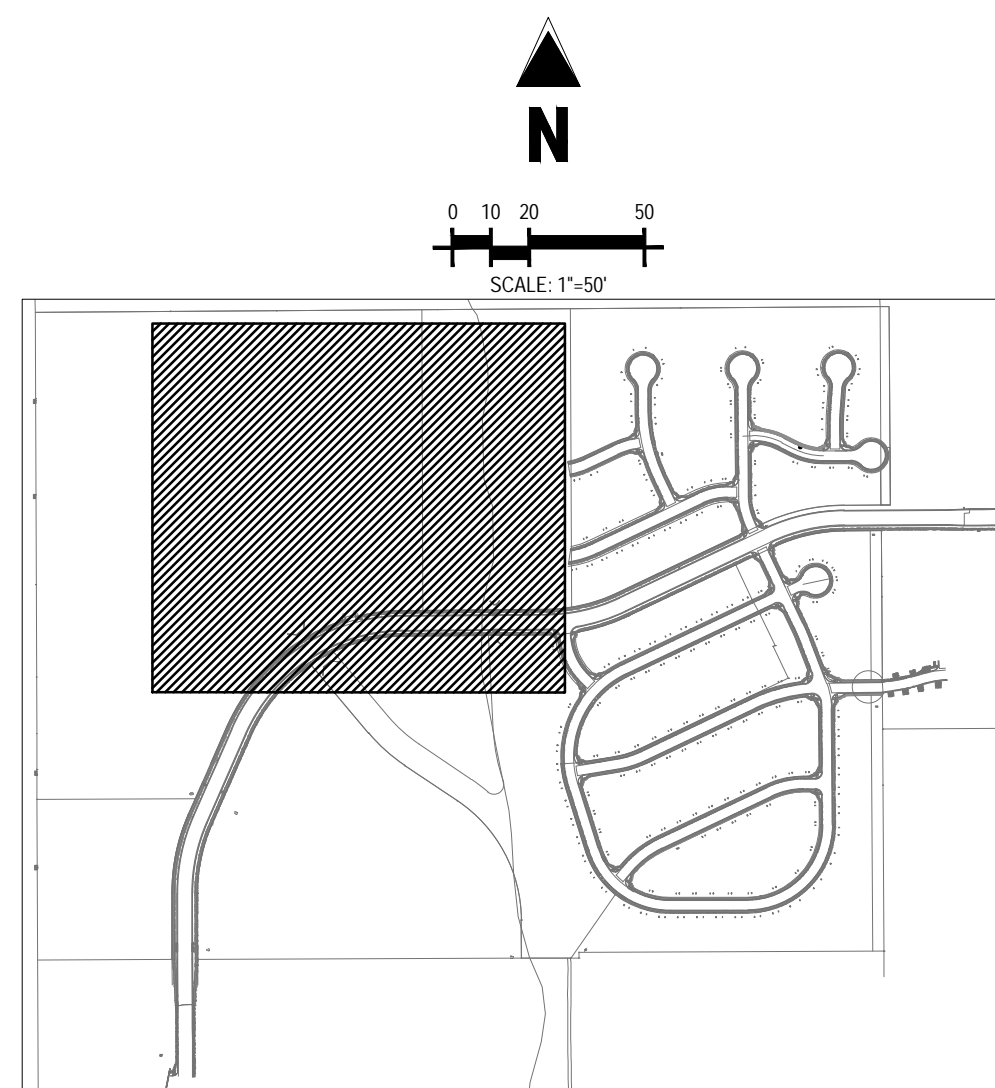
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Project No:	CLH-14.20
Drawn By:	JDP
Checked By:	RGD
Date:	7/29/2019

WATER LAYOUT PLAN

C2.01

Sheet 9 of 31



## LOCATION MAP

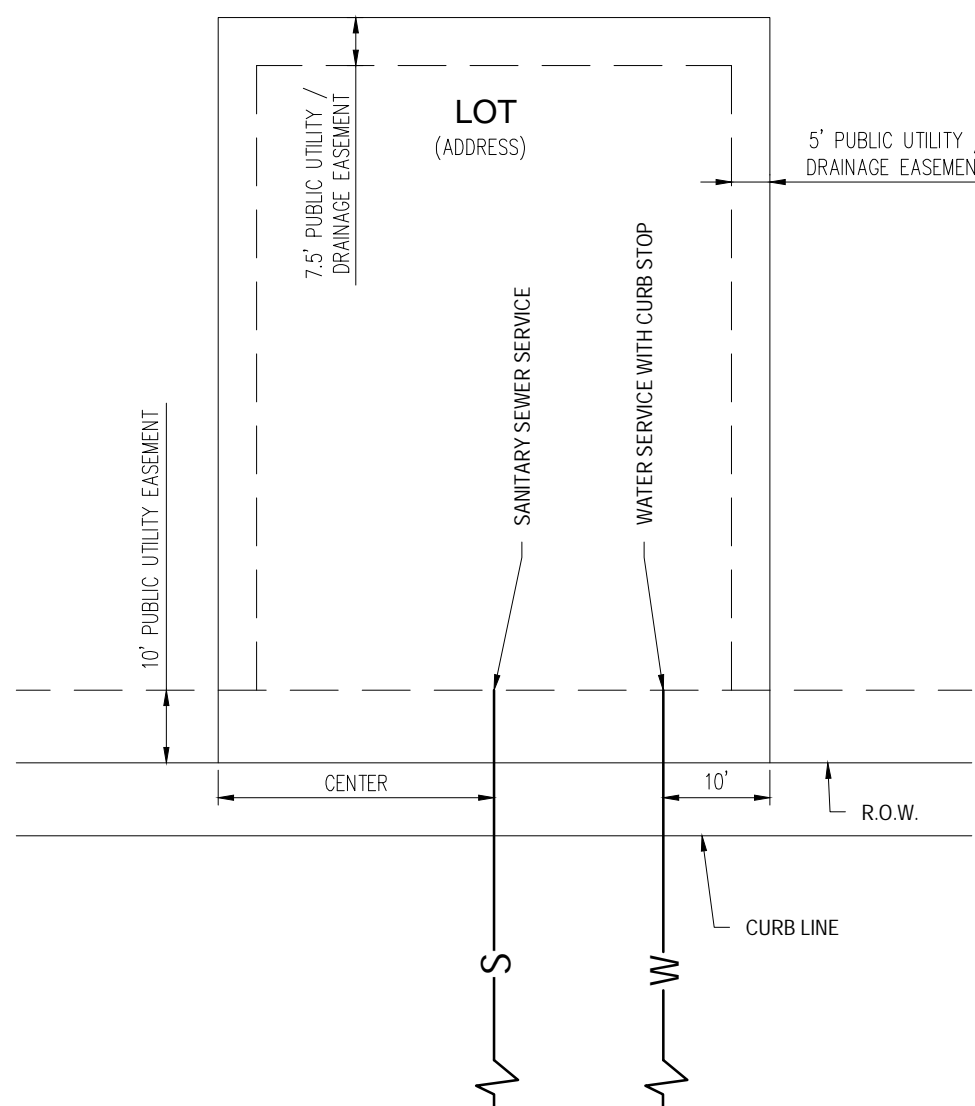
SCALE: 1"=600'

### UTILITY LEGEND

- 
- PROPERTY BOUNDARY
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- PROPOSED WATER LINE
- PROPOSED HYDRANT AND FITTINGS
- PROPOSED SANITARY SEWER
- PROPOSED SANITARY MANHOLE
- 100 YEAR FLOOD PLAIN
- EXISTING OVERHEAD ELECTRIC LINE

GENERAL NOTES:

2. CONTRACTOR TO OBTAIN WORK IN THE ROW PERMIT FROM EL PASO COUNTY PRIOR TO CONSTRUCTION.
3. CONTRACTOR TO POTHOLE AND VERIFY EXISTENCE OF OTHER UTILITIES WITHIN ANY PUBLIC RIGHT OF WAY'S.
4. 20" UTILITY EASEMENT TO BE GRANTED PRIOR TO CONSTRUCTION.
5. CONTRACTOR TO MAINTAIN 5' OR MINIMUM COVER OVER ALL WATER MAINS CONSTRUCTED.
6. ALL VALVES SHOWN FOR SCHEMATIC PURPOSES ONLY. NO VALVES SHALL BE INSTALLED IN CURB AND GUTTER OR CROSSINGS.
7. SANITARY WATER SERVICE LOCATIONS TO BE 10' FROM "DOWNSTREAM" PROPERTY LINE AND EXTENDED STANDARD 10" PUBLIC UTILITY EASEMENT.
8. SEWER SERVICE TO BE PLACED APPROXIMATELY IN THE MIDDLE OF THE LOT AND BE EXTENDED THROUGH THE 10' PUBLIC UTILITY EASEMENT.
9. SERVICES SHALL BE MARKED WITH "XX" POST AT TERMINATION POINT FOR LOCATION DURING CONNECTION TO RESIDENCE. POSTS SHALL BE SPRAY-PAINTED BLUE FOR WATER AND GREEN FOR SEWER.
10. CURB STOPS ARE NOT TO BE INSTALLED IN CONCRETE CURB, CROSSPANS, SIDEWALKS, OR DRIVEWAYS.
11. SANITARY SERVICE MAINLINE DEPTH (1'-10' DEPTH). NO BASEMENTS ALLOWED UNLESS PUMPED TO MAIN LOTS WITH FRONTAGE OF 40' OR LESS. WATER SERVICE LOCATION WILL BE 2' OF THE DOWN HILL LOT CORNER.
12. SEE PLAN FOR CORNER LOT LOCATIONS.



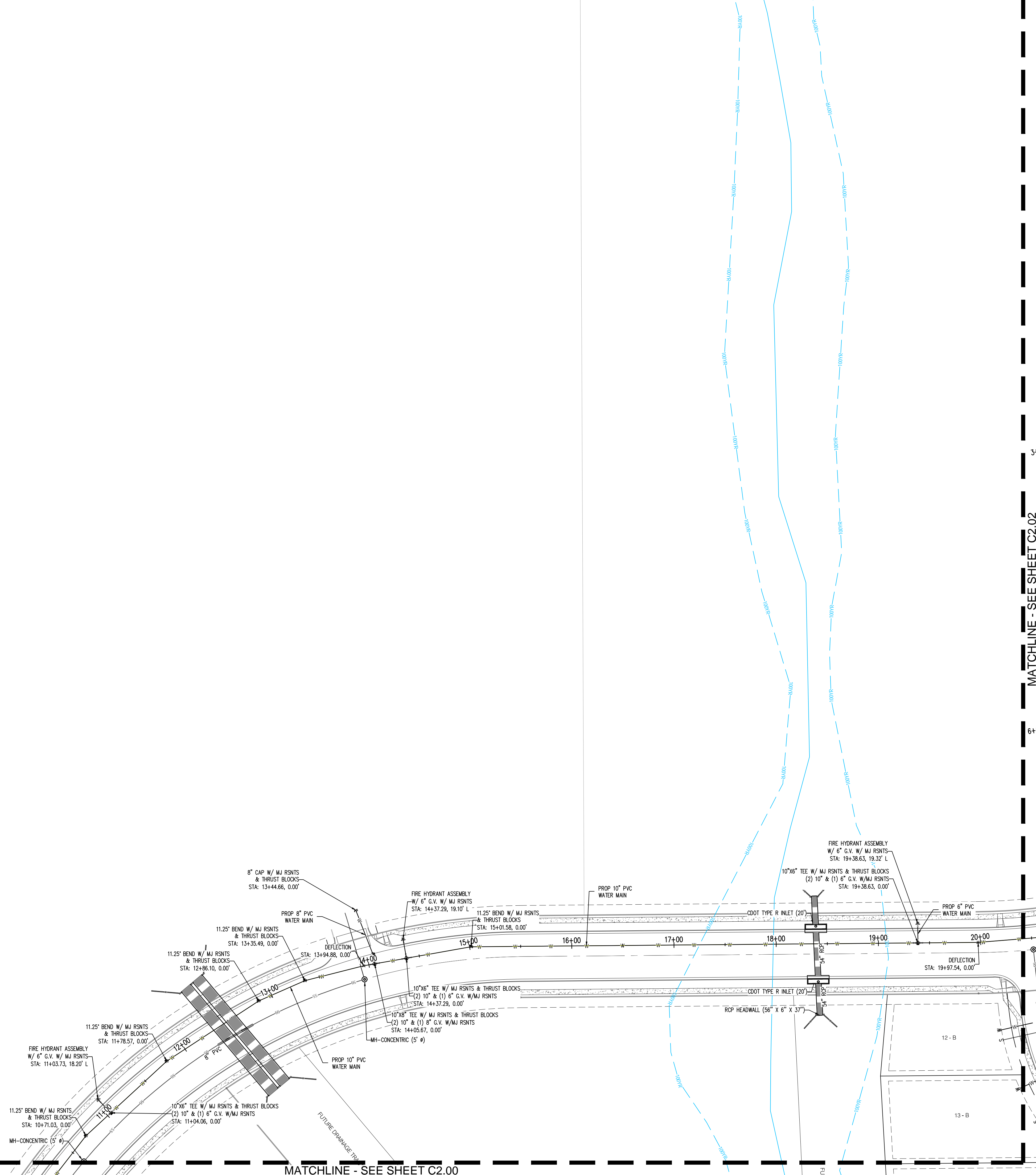
DETAIL: UTILITY SERVICE LOCATIONS  
N.T.S.

CAUTION - NOTICE TO CONTRACTOR

1. ALL UTILITY LOCATIONS SHOWN ARE BASED ON MAPS PROVIDED BY THE APPROPRIATE UTILITY COMPANY AND FIELD SURFACE EVIDENCE AT THE TIME OF SURVEY AND IS TO BE CONSIDERED AN APPROXIMATE LOCATION ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE FIELD LOCATION OF ALL UTILITIES, PUBLIC OR PRIVATE, WHETHER SHOWN ON THE PLANS OR NOT, PRIOR TO CONSTRUCTION. REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO CONSTRUCTION.
2. WHERE A PROPOSED UTILITY CROSSES AN EXISTING UTILITY, IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF SUCH EXISTING UTILITY EITHER BY GROUND PENETRATING OR ALTERNATIVE METHOD. REPORT INFORMATION TO THE ENGINEER PRIOR TO CONSTRUCTION.



Know what's below.  
Call before you dig.







CONSTRUCTION PLANS  
BENT GRASS RESIDENTIAL FILING NO. 2

BENT GRASS MEADOWS DRIVE  
FALCON, CO 80831 EL PASO COUNTY

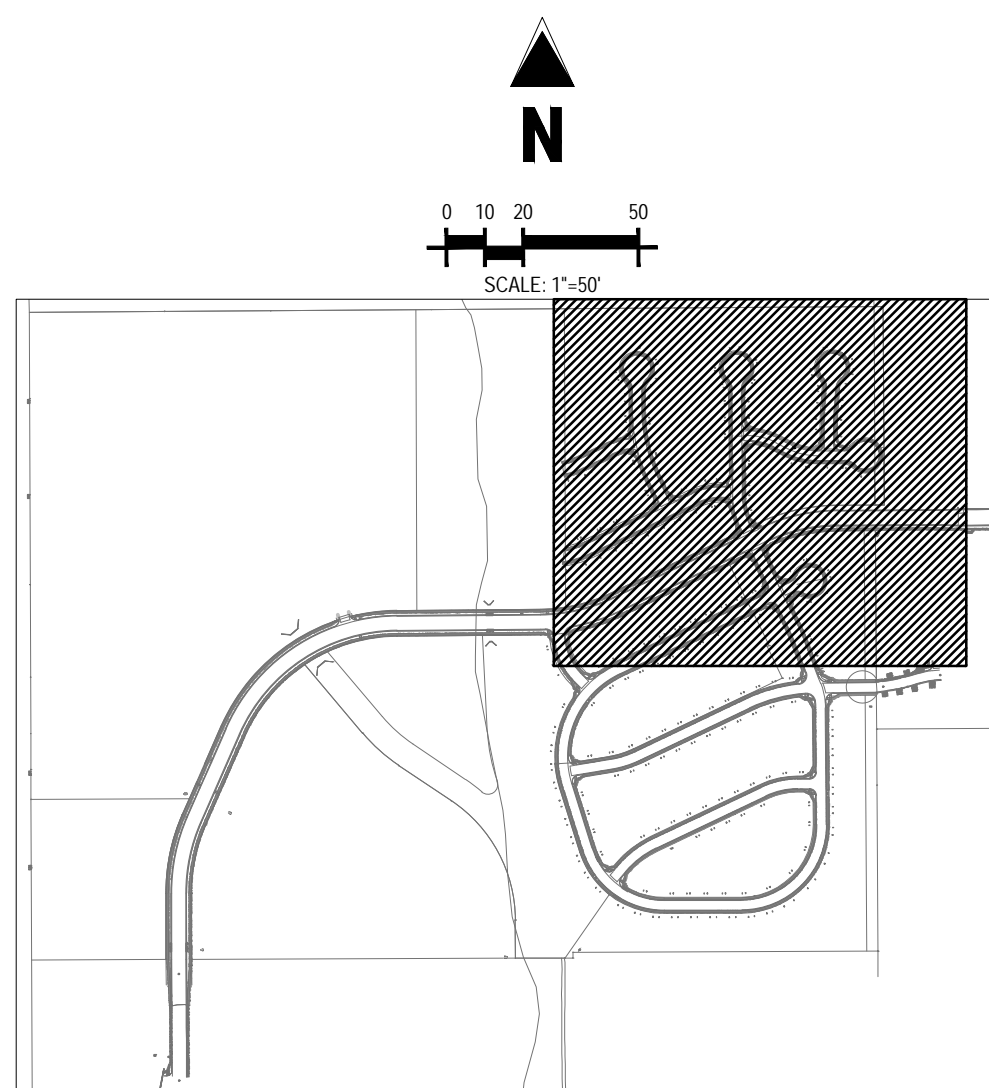
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Project No:	CLH-14.20
Drawn By:	JDP
Checked By:	RGD
Date:	7/29/2019

WATER LAYOUT PLAN

## C2.02

Sheet 10 of 31



## LOCATION MAP

SCALE: 1"=600'

## UTILITY LEGEND

PROPERTY BOUNDARY

EXISTING STORM SEWER

PROPOSED STORM SEWER

PROPOSED WATER LINE

PROPOSED HYDRANT AND FITTINGS

PROPOSED SANITARY SEWER

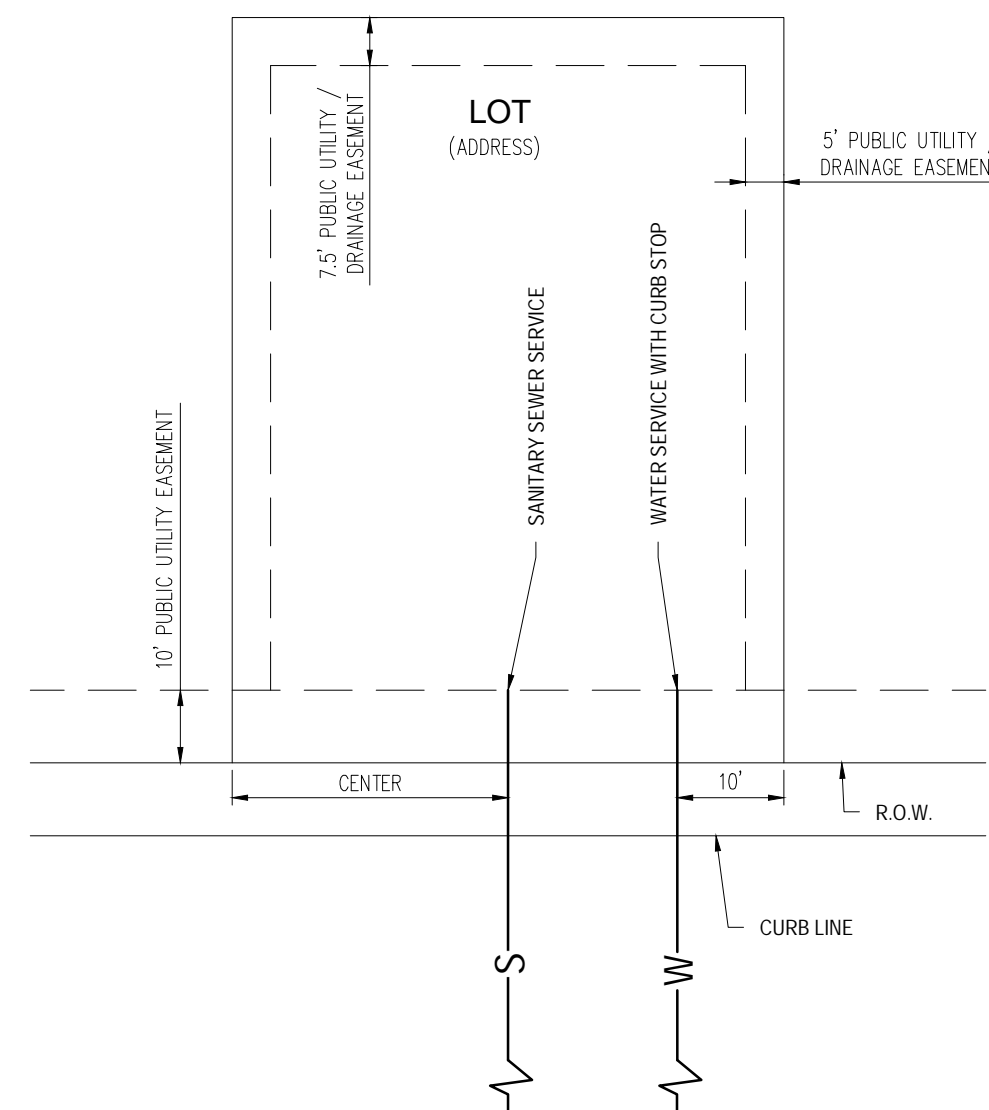
PROPOSED SANITARY MANHOLE

100 YEAR FLOOD PLAIN

EXISTING OVERHEAD ELECTRIC LINE

## GENERAL NOTES:

2. CONTRACTOR TO OBTAIN WORK IN THE ROW PERMIT FROM EL PASO COUNTY PRIOR TO CONSTRUCTION.
3. CONTRACTOR TO POTHOLE AND VERIFY EXISTENCE OF OTHER UTILITIES WITHIN ANY PUBLIC RIGHT OF WAYS.
3. 20' UTILITY EASEMENT TO BE GRANTED PRIOR TO CONSTRUCTION.
4. CONTRACTOR TO MAINTAIN 5' 0" MINIMUM COVER OVER ALL WATER MAINS CONSTRUCTED.
5. ALL VALVES SHOWN FOR SCHEMATIC PURPOSES ONLY. NO VALVES SHALL BE INSTALLED IN CURB AND GUTTER OR CROSSPANS.
6. SANITARY SEWER SERVICE LOCATIONS TO BE 10' FROM "DOWNSTREAM" PROPERTY LINE AND EXTENDED THROUGH THE 10' PUBLIC UTILITY EASEMENT.
7. SEWER SERVICE TO BE PLACED APPROXIMATELY IN THE MIDDLE OF THE LOT AND BE EXTENDED THROUGH THE 10' PUBLIC UTILITY EASEMENT.
8. SERVICES SHALL BE MARKED WITH 2"X4" POST AT TERMINATION POINT FOR LOCATION DURING CONNECTION TO RESIDENCE. POSTS SHALL BE SPRAY-PAINTED BLUE FOR WATER AND GREEN FOR SEWER.
9. CURB STOPS ARE NOT TO BE INSTALLED IN CONCRETE CURB, CROSSPANS, SIDEWALKS, OR DRIVEWAYS.
10. SANITARY SEWER MAINLINE DEPTH (<10' DEPTH). NO BASEMENTS ALLOWED UNLESS PUMPED TO MAIN ELEVATION.
11. LOTS WITH FRONTAGE OF 40' OR LESS, WATER SERVICE LOCATION WILL BE 2' 0" OFF THE DOWN HILL LOT CORNER.
12. SEE PLAN FOR CORNER LOT LOCATIONS.



DETAIL: UTILITY SERVICE LOCATIONS  
N.T.S.

### CAUTION - NOTICE TO CONTRACTOR

1. ALL UTILITY LOCATIONS SHOWN ARE BASED ON MAPS PROVIDED BY THE APPROPRIATE UTILITY COMPANY AND FIELD SURFACE EVIDENCE AT THE TIME OF SURVEY AND IS TO BE CONSIDERED AN APPROXIMATE LOCATION ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE FIELD LOCATION OF ALL UTILITIES, PUBLIC OR PRIVATE, WHETHER SHOWN ON THE PLAN OR NOT, PRIOR TO CONSTRUCTION. REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO CONSTRUCTION.
2. WHERE A PROPOSED UTILITY CROSSES AN EXISTING UTILITY, IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF SUCH EXISTING UTILITY, EITHER THROUGH POT-HOLING OR AN ALTERNATIVE METHOD. REPORT INFORMATION TO THE ENGINEER PRIOR TO CONSTRUCTION.



Know what's below.  
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**MATCHLINE - SEE SHEET C2.01**

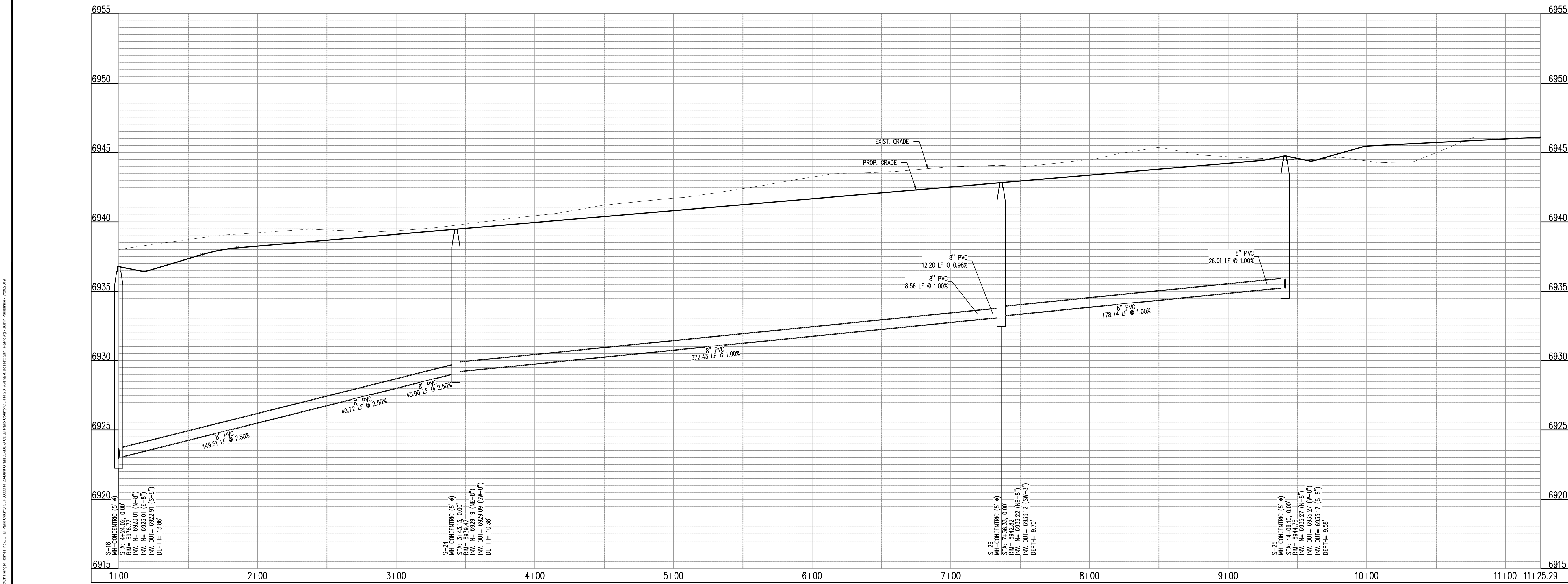
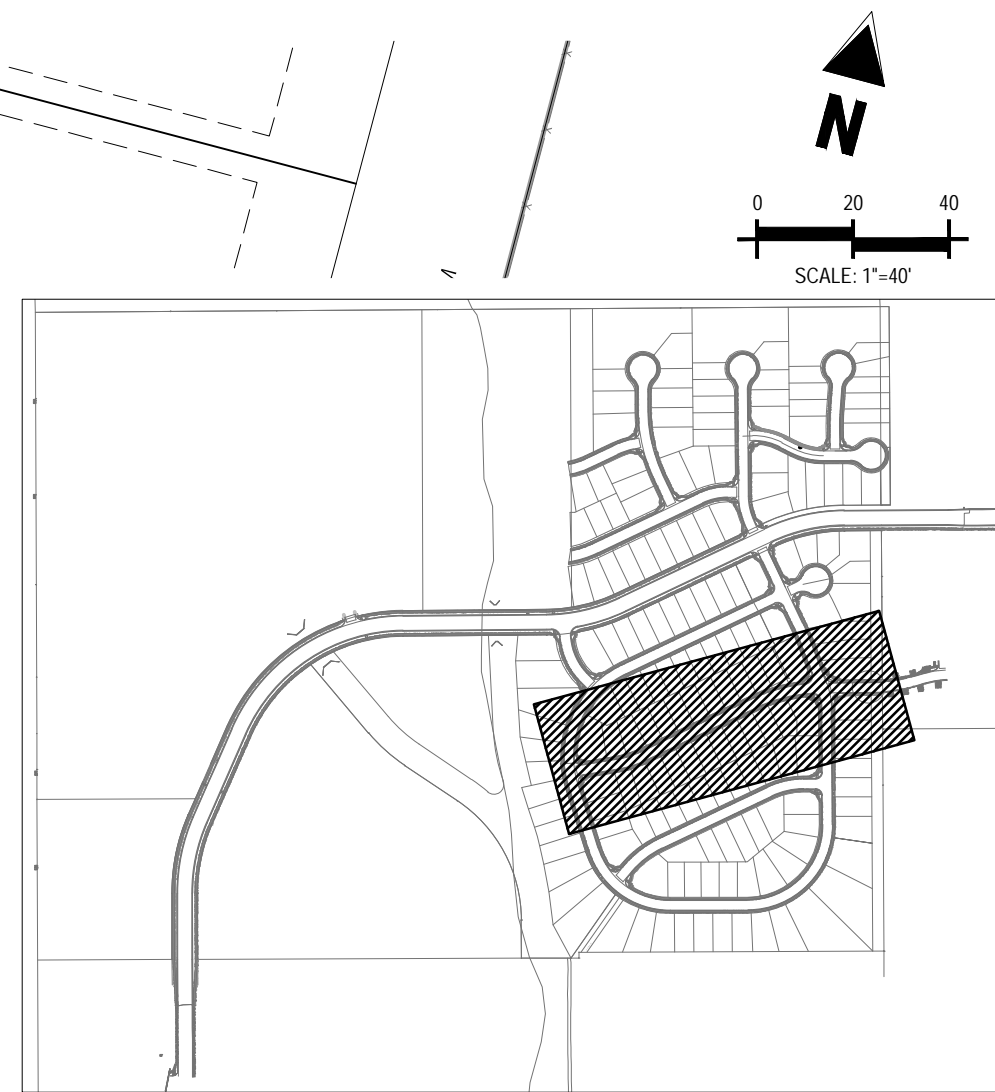
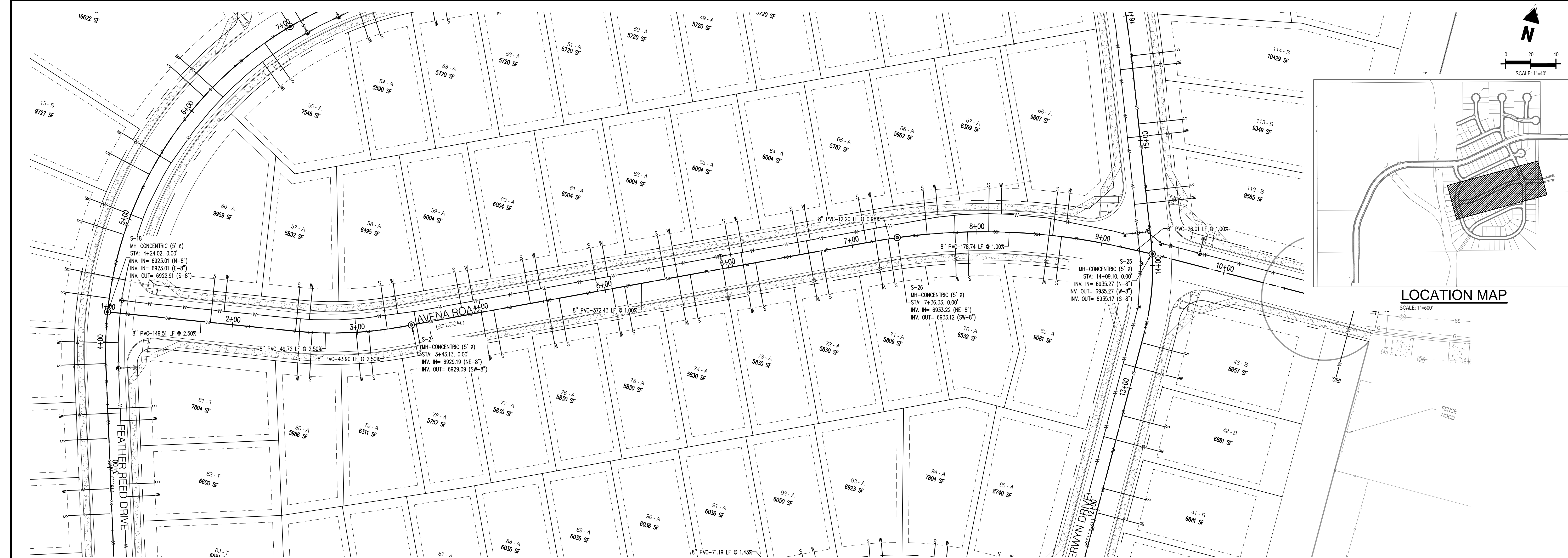
MATCHLINE - SEE SHEET C2.0

W/Challenger Homes Inc/CO, El Paso County-CLH000014\_20-Best Grass/CAD000 CD/El Paso County/CLH14\_20\_ Water Passagion - 7/28/2018







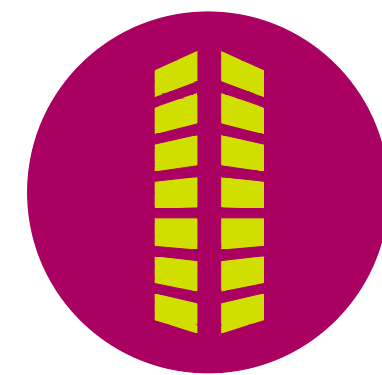


AVENA RD - CL - 50' ROW  
STA: 1+00 - 11+25.29  
SCALE: H: 1"=40' V: 1"=10'

**Galloway**

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Colorado Springs, CO 80920  
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CONSTRUCTION PLANS  
BENT GRASS RESIDENTIAL FILING NO. 2

BENT GRASS MEADOWS DRIVE  
FALCON, CO 80831 EL PASO COUNTY

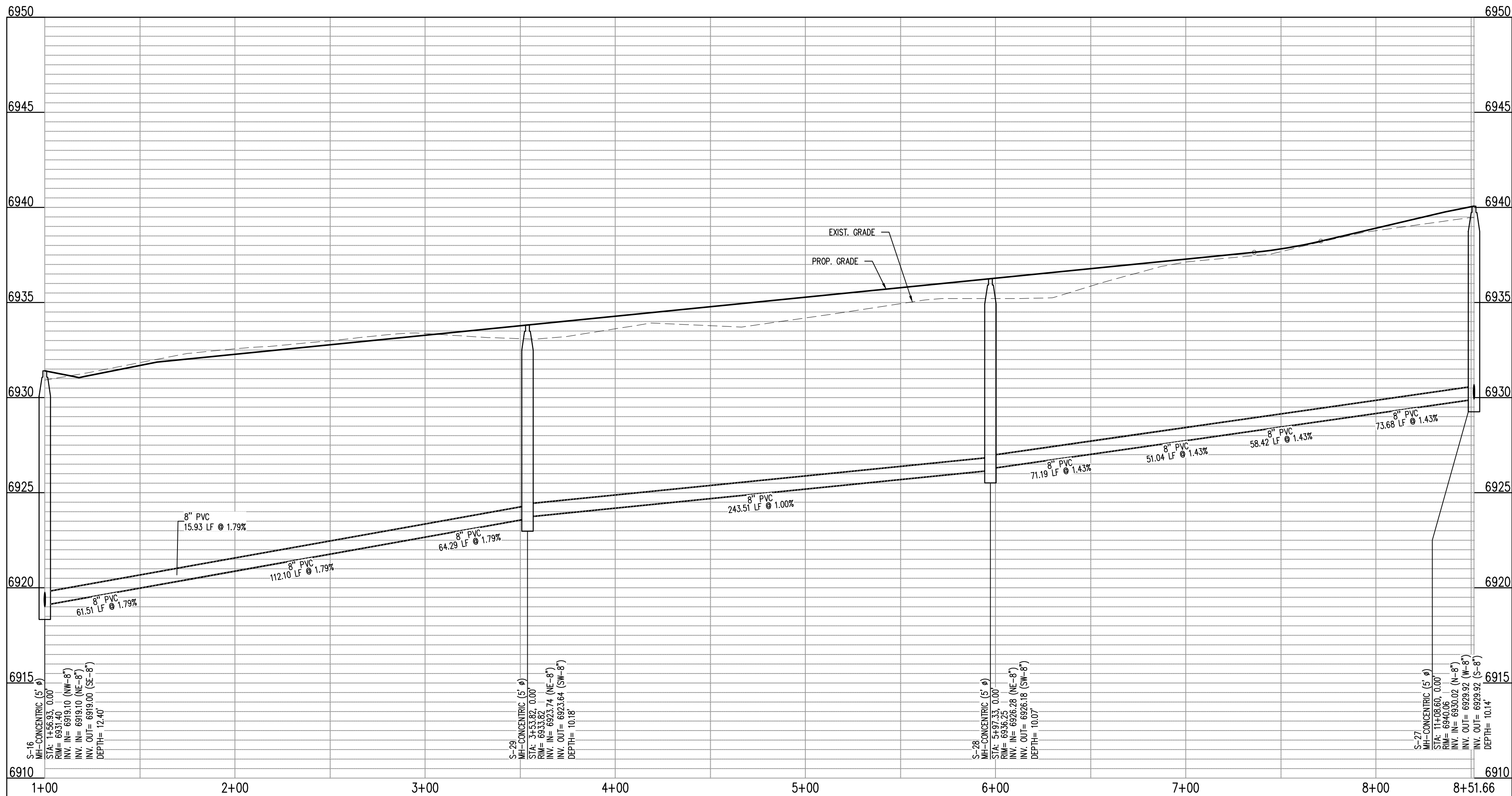
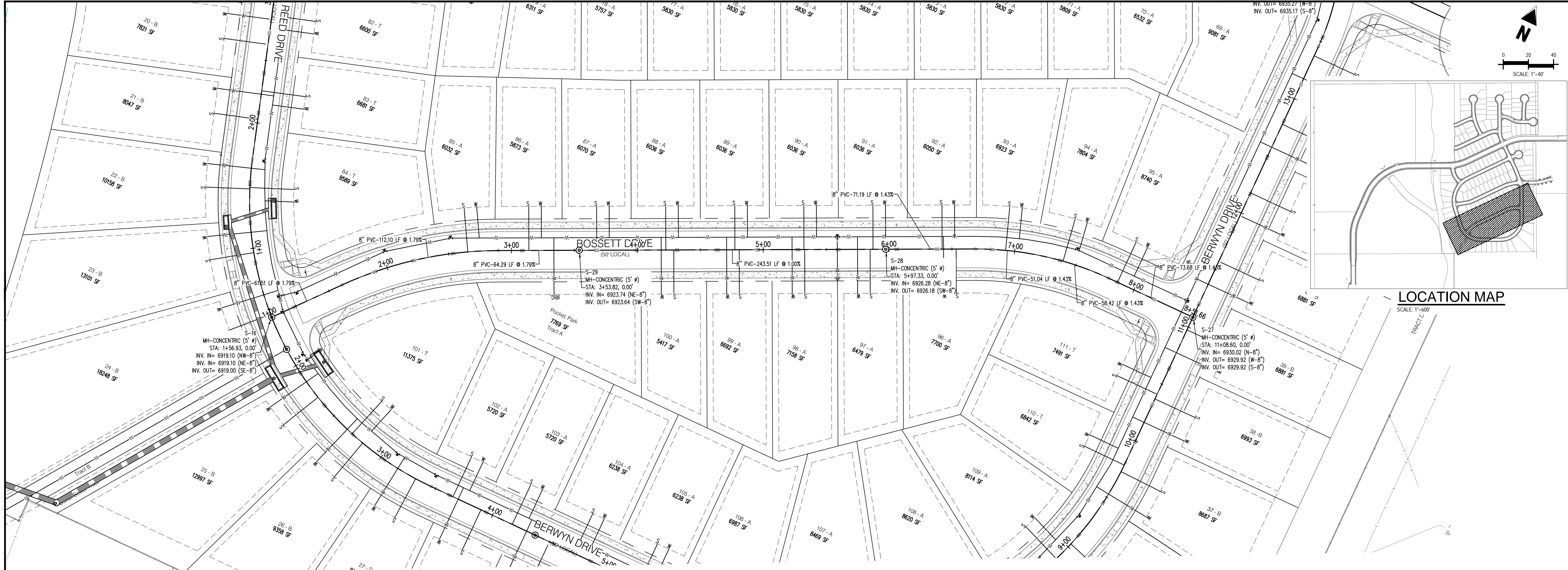
#	Date	Issue / Description	Init.

Project No: CLH-14-20  
Drawn By: JDP  
Checked By: RGD  
Date: 7/29/2019

AVENA ROAD  
SANITARY PLAN & PROFILE

**C3.00**  
Sheet 12 of 31



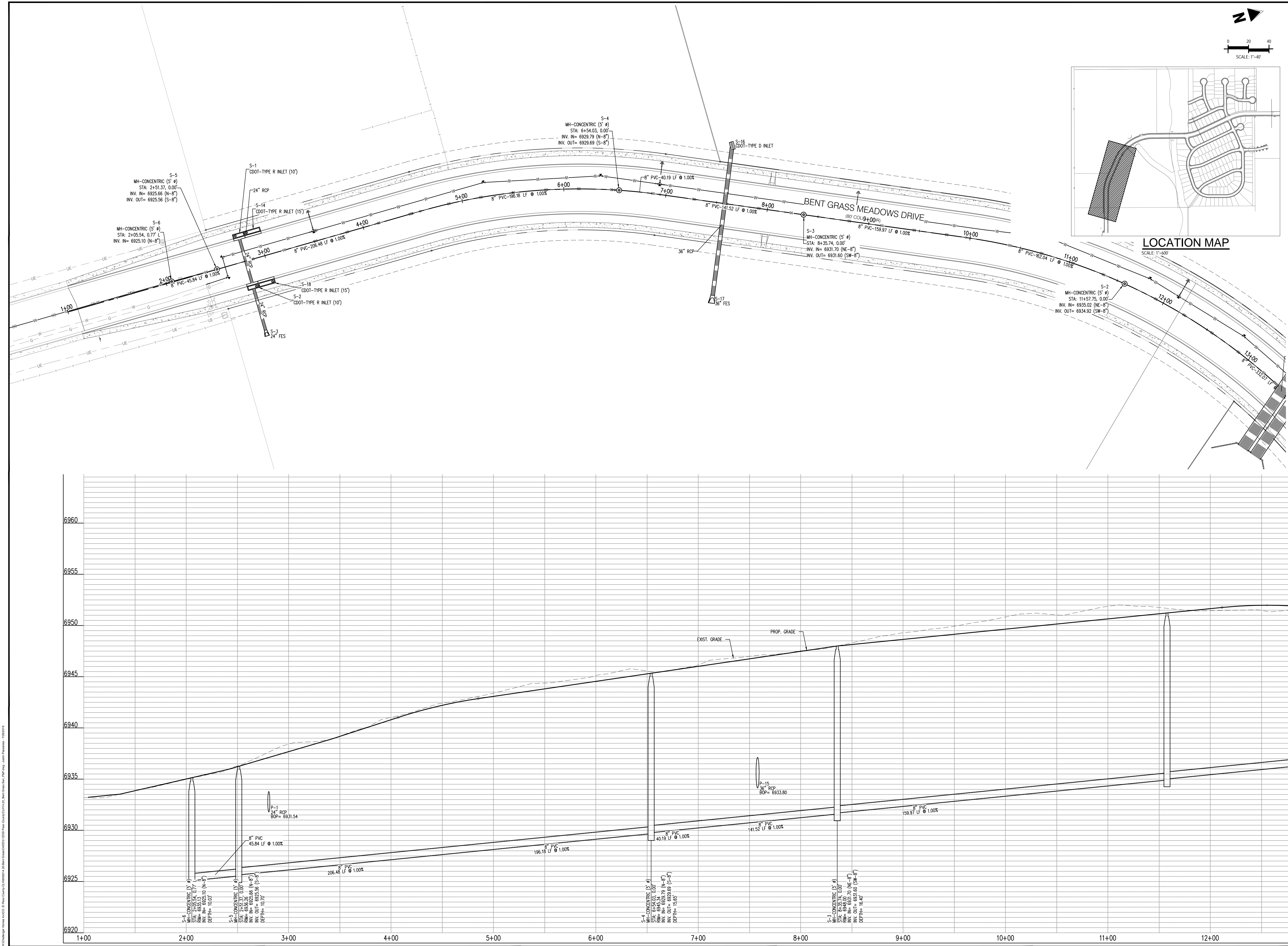


BOSSETT DR - CL - 50' ROW  
STA: 1+00 - 8+51.66  
SCALE: H: 1"=40' V: 1"=10'

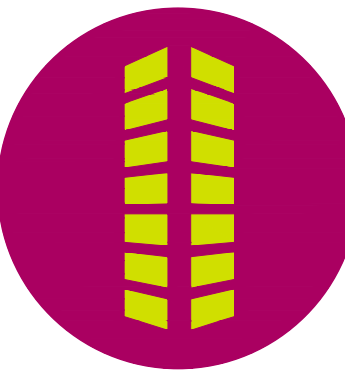


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CONSTRUCTION PLANS  
BENT GRASS RESIDENTIAL FILING NO. 2

BENT GRASS MEADOWS DRIVE  
FALCON, CO 80831 EL PASO COUNTY

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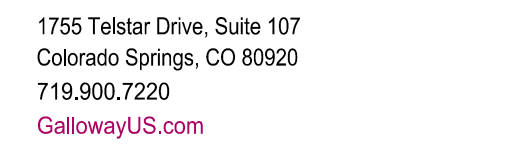
Project No: CLH-14-20  
Drawn By: JDP  
Checked By: RGD  
Date: 7/29/2019

BENT GRASS MEADOWS DRIVE  
SANITARY PLAN & PROFILE

C3.02

Sheet 14 of 31





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CONSTRUCTION PLANS  
BENT GRASS RESIDENTIAL FILING NO. 2

BENT GRASS MEADOWS DRIVE  
FALCON, CO 80831 EL PASO COUNTY

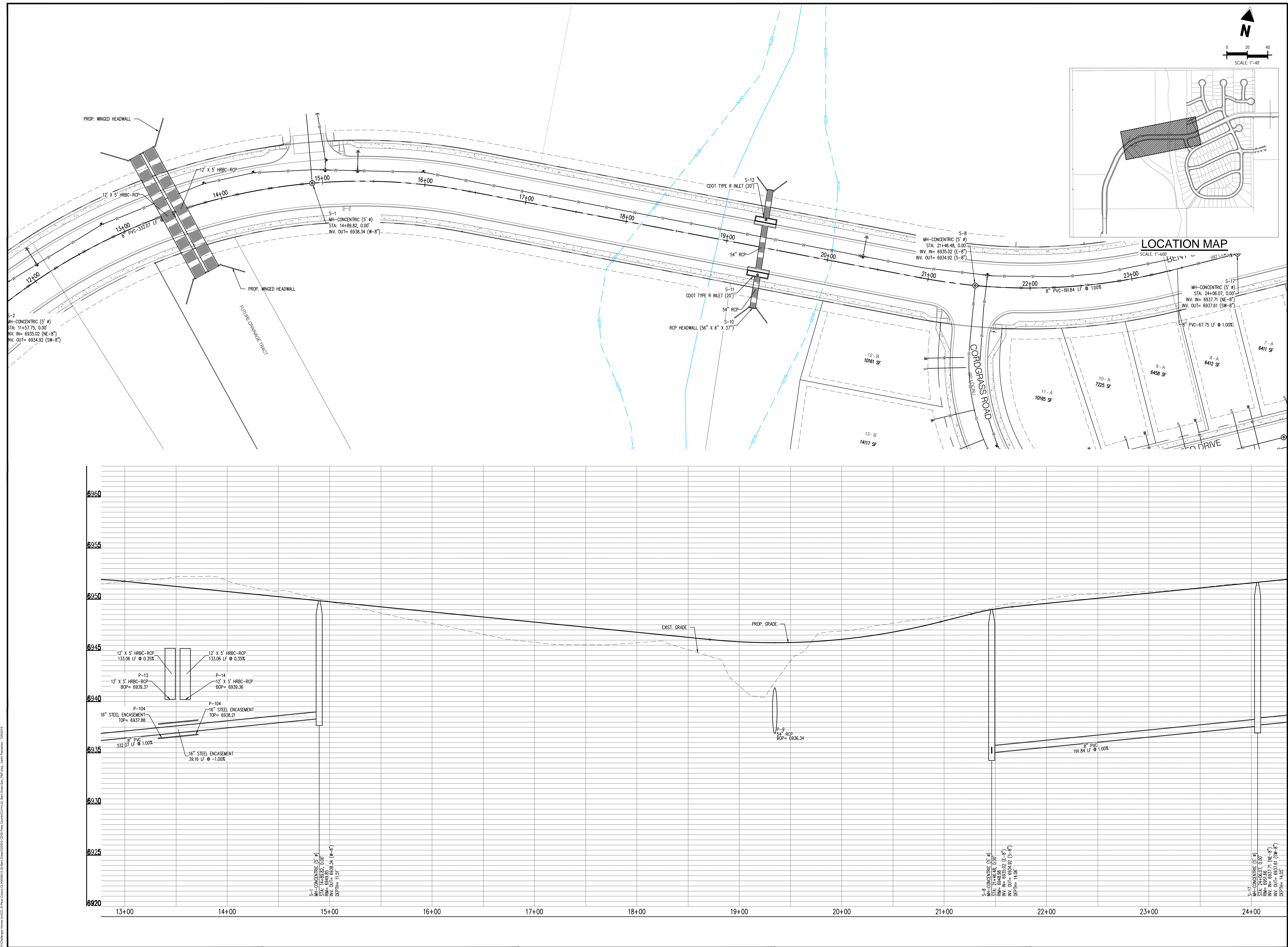
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Project No:	CLH-14.20
Drawn By:	JDP
Checked By:	RGD
Date:	7/29/2019

BENT GRASS MEADOWS DRIVE  
SANITARY PLAN & PROFILE

C3.03

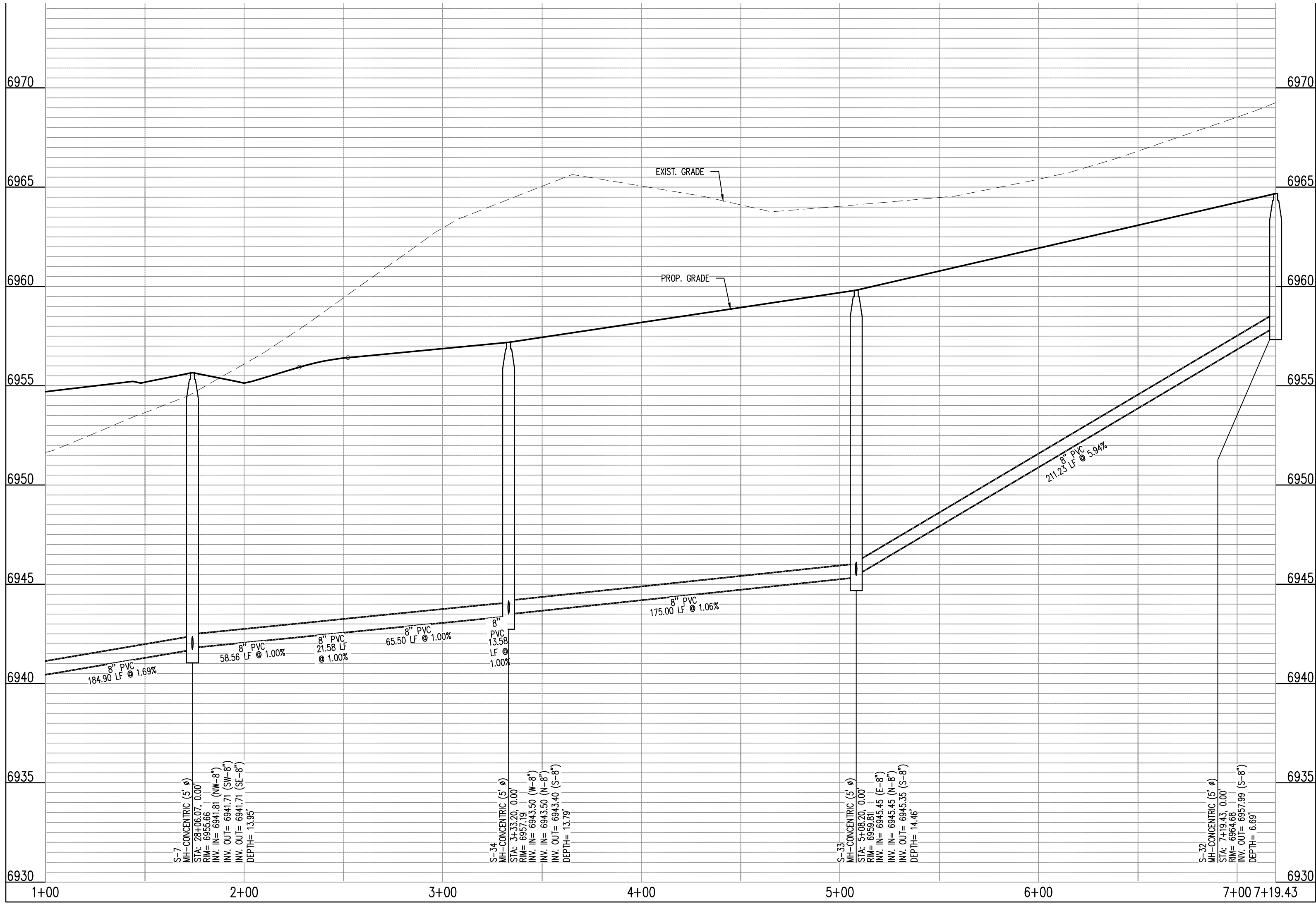
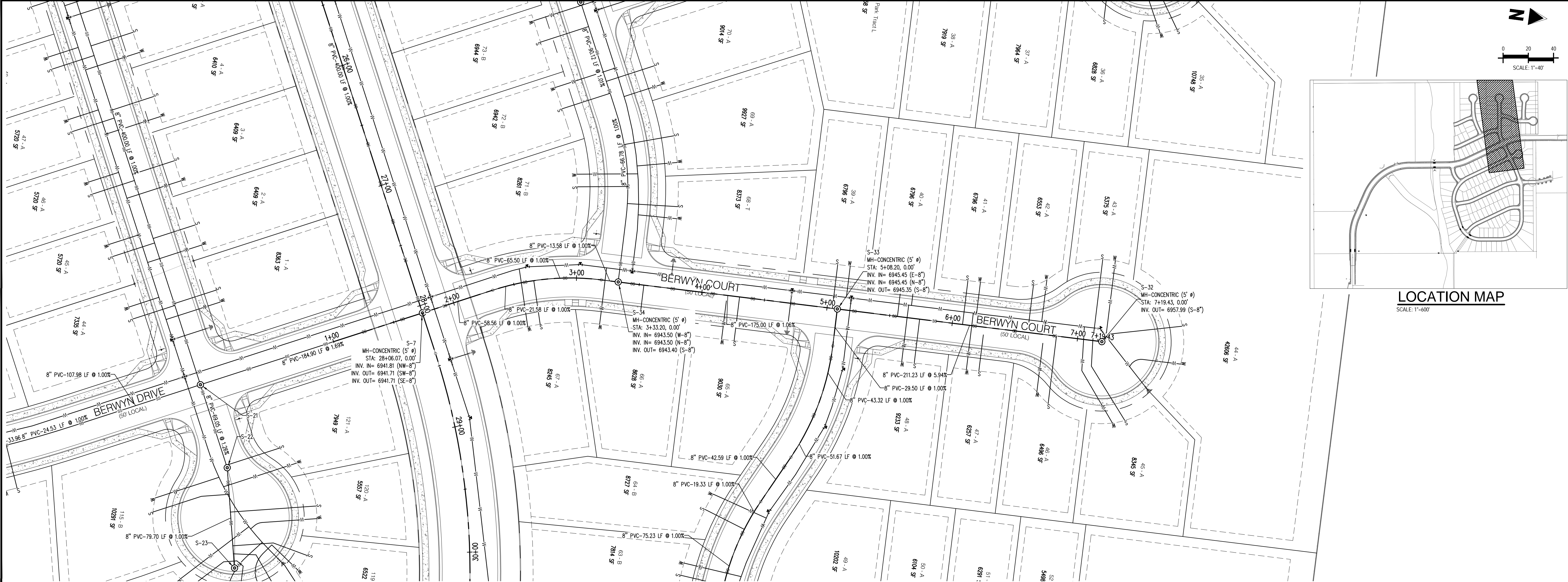
Sheet 15 of 31











BERWYN DR NORTH - CL - 50' ROW  
STA: 1+00 - 7+19.43  
SCALE: H: 1"=40' V: 1"=10'



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BERWYN DRIVE  
SANITARY PLAN & PROFILE





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CONSTRUCTION PLANS  
BENT GRASS RESIDENTIAL FILING NO. 2

BENT GRASS MEADOWS DRIVE  
FALCON, CO 80831 EL PASO COUNTY

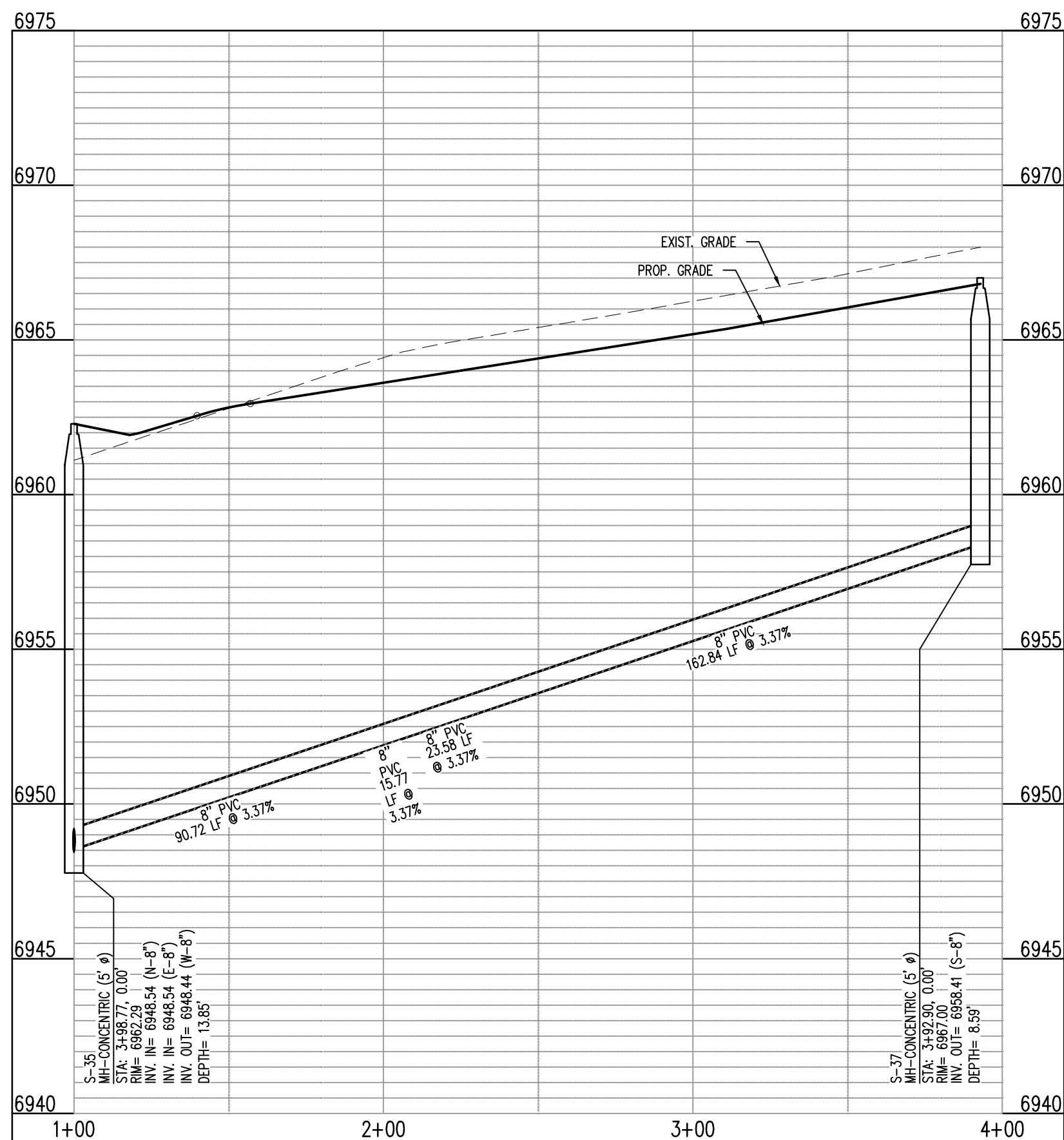
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Project No:	CLH-14.20
Drawn By:	JDP
Checked By:	RGD
Date:	7/29/2019

NIEBRARA DRIVE &  
ANSLEY COURT  
SANITARY PLAN & PROFILE

C3.06

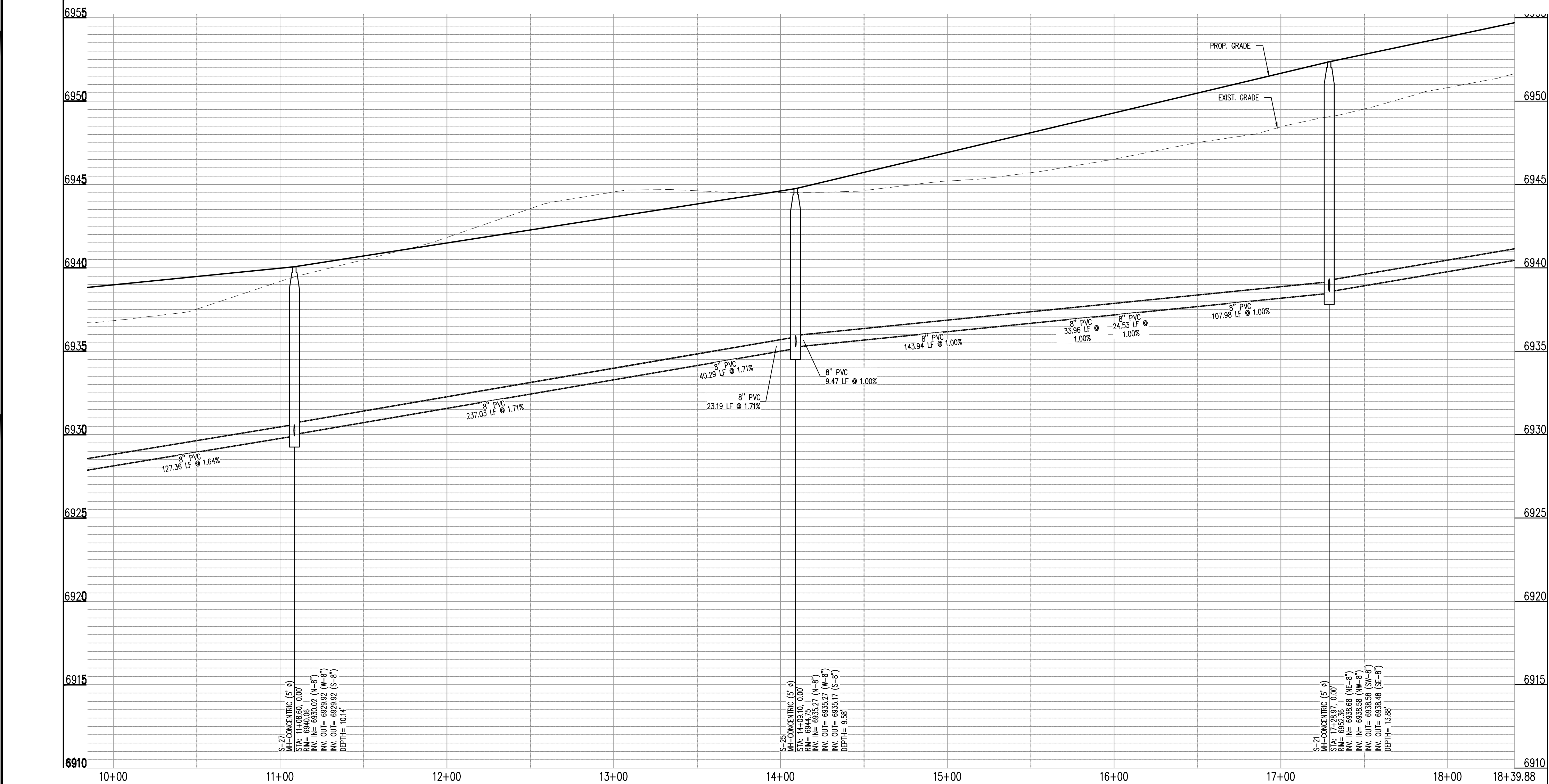
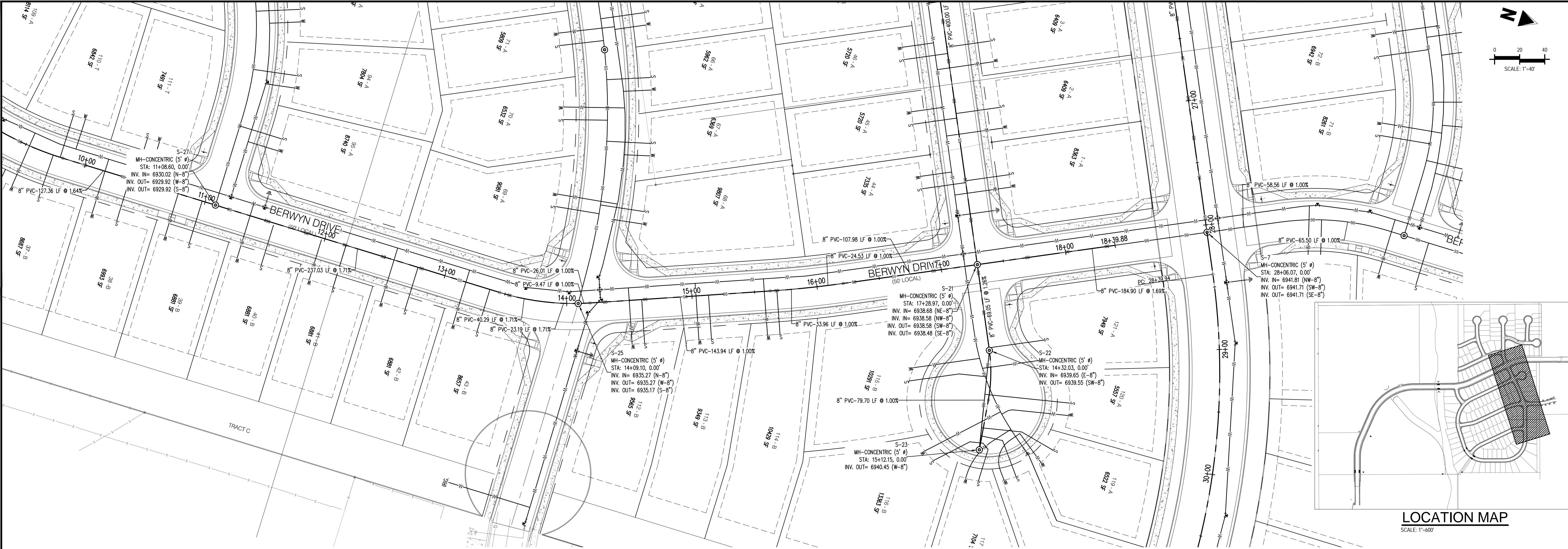
Sheet 18 of 31











CONSTRUCTION PLANS  
BENT GRASS RESIDENTIAL FILING NO. 2

BENT GRASS MEADOWS DRIVE  
FALCON, CO 80831 EL PASO COUNTY

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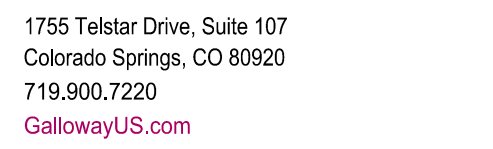
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Date:	7/29/2019

BERWYN DRIVE  
SANITARY PLAN & PROFILE









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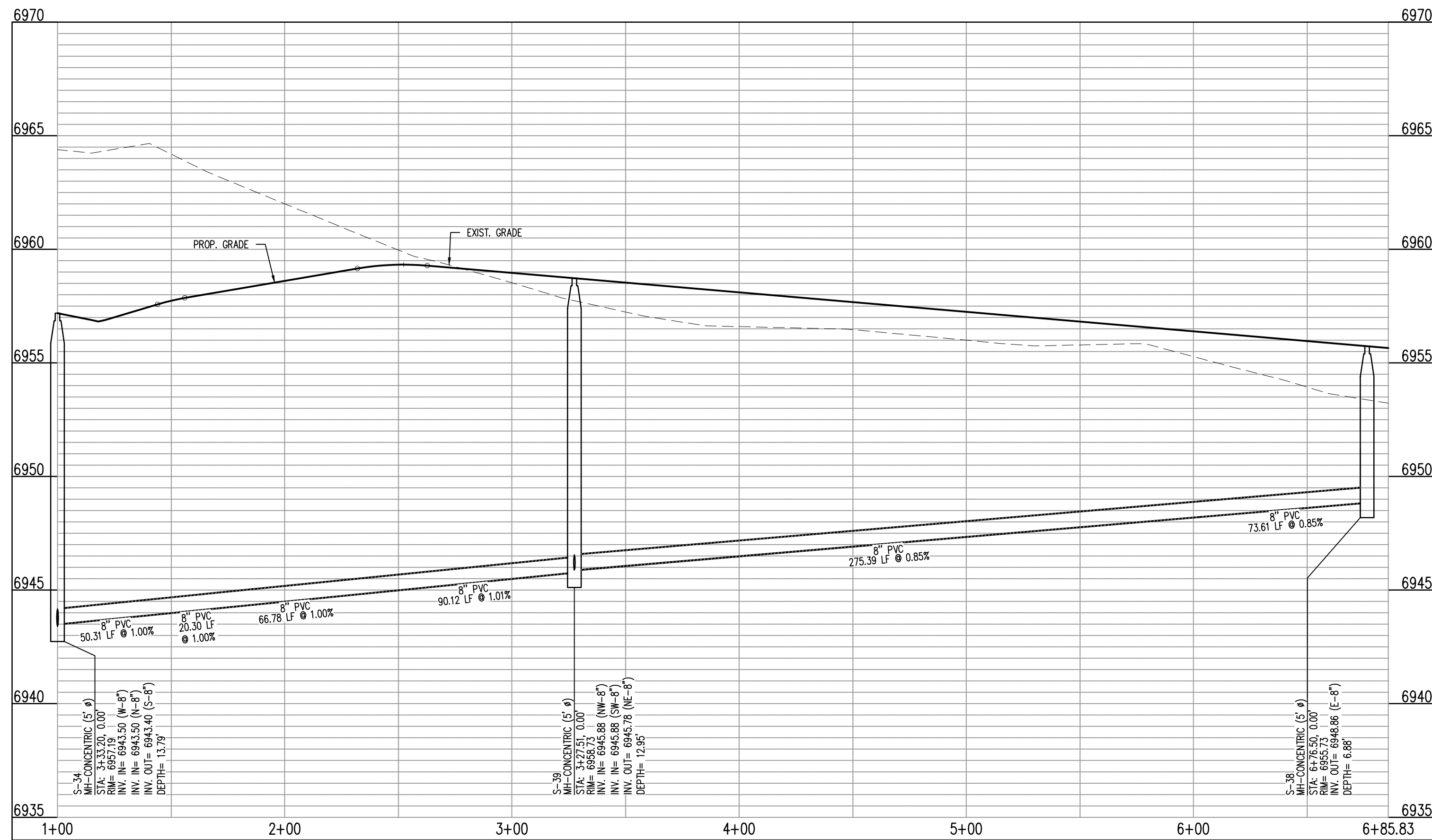
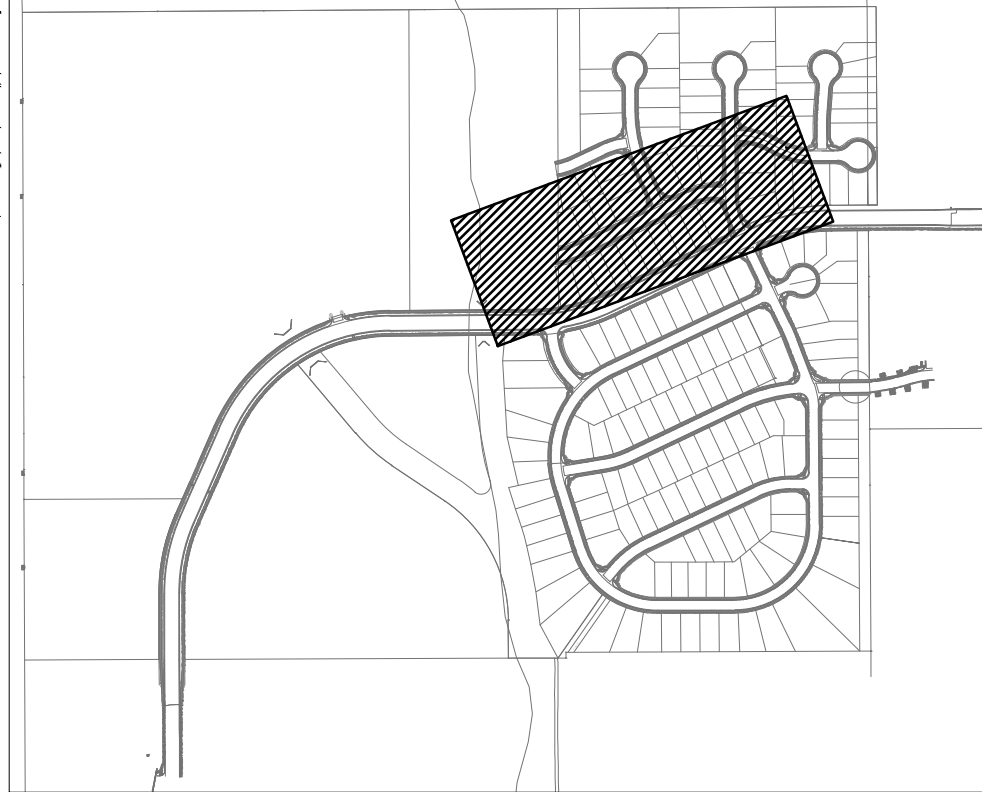
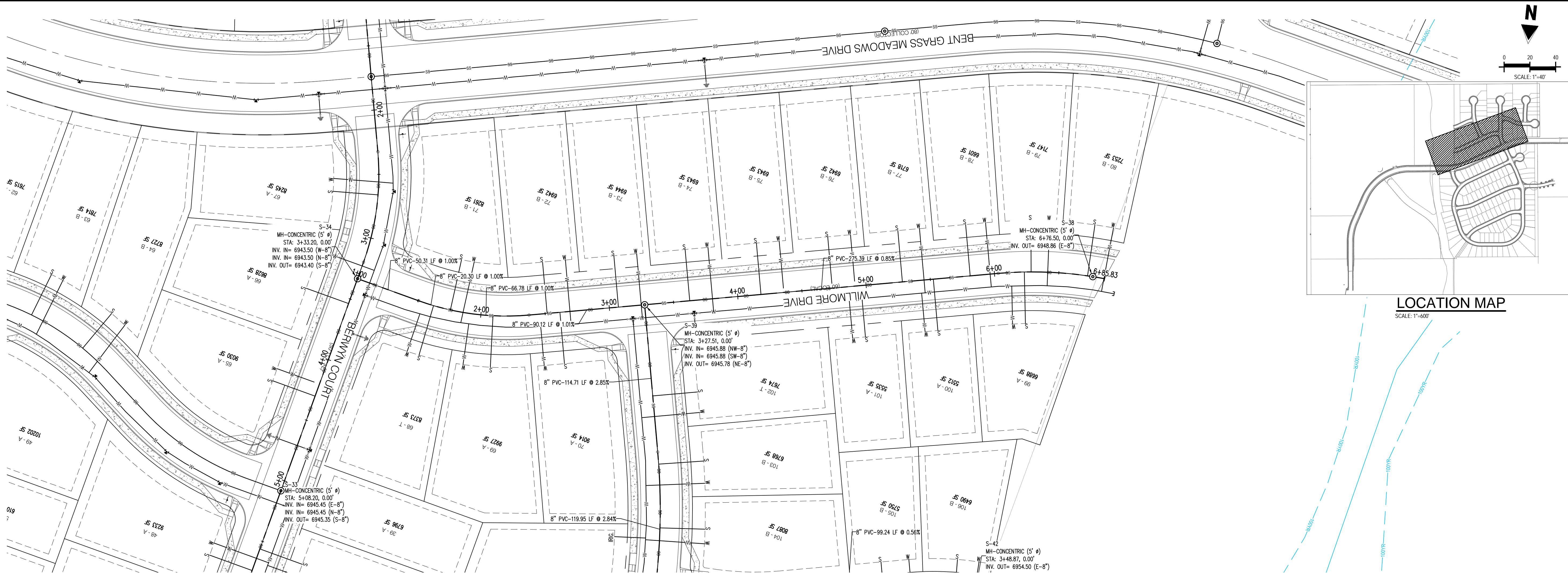
Project No:	CLH-14.20
Drawn By:	JDP
Checked By:	RGD
Date:	7/29/2019

C3.10

Sheet 22 of 31



C:\Projects\Bent Grass Meadows\Drawings\Bent Grass Meadows\DWG\Bent Grass Meadows\Sanitary Plan & Profile.dwg - AutoCAD 2019 - 7/29/2019



WILLMORE DR EAST - CL - 60' ROW  
STA: 1+00 - 6+85.83  
SCALE: H: 1"=40' V: 1"=10'

**Galloway**

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Colorado Springs, CO 80920  
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CONSTRUCTION PLANS  
BENT GRASS RESIDENTIAL FILING NO. 2

BENT GRASS MEADOWS DRIVE  
FALCON, CO 80831 EL PASO COUNTY

#	Date	Issue / Description	Init.
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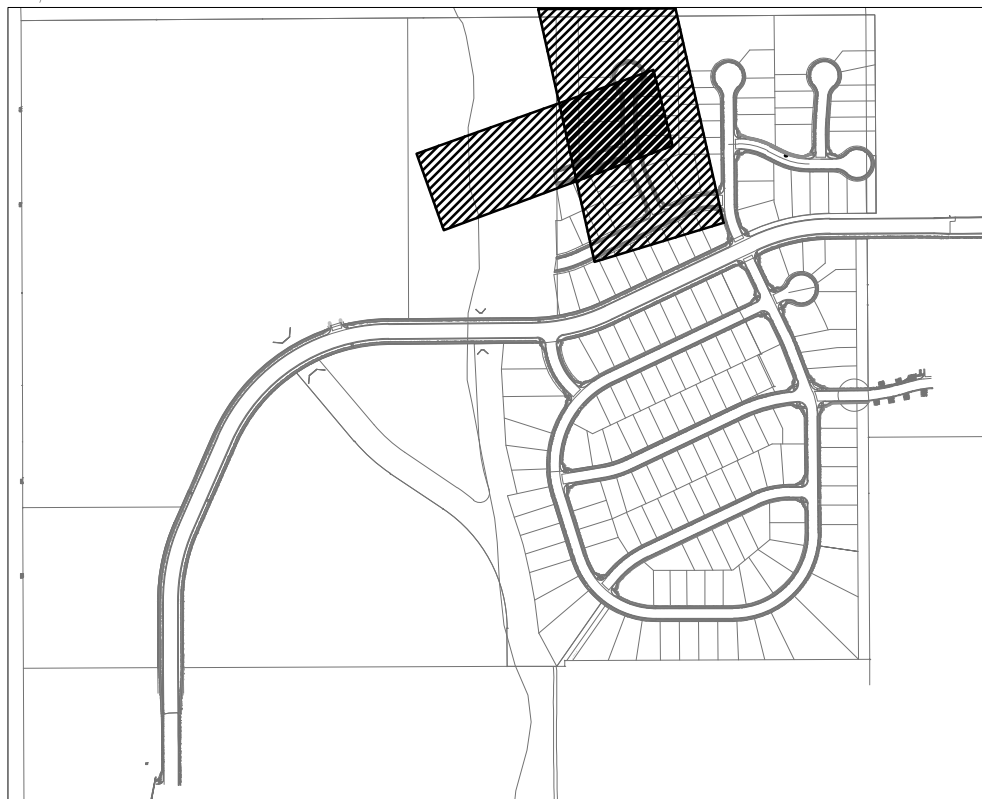
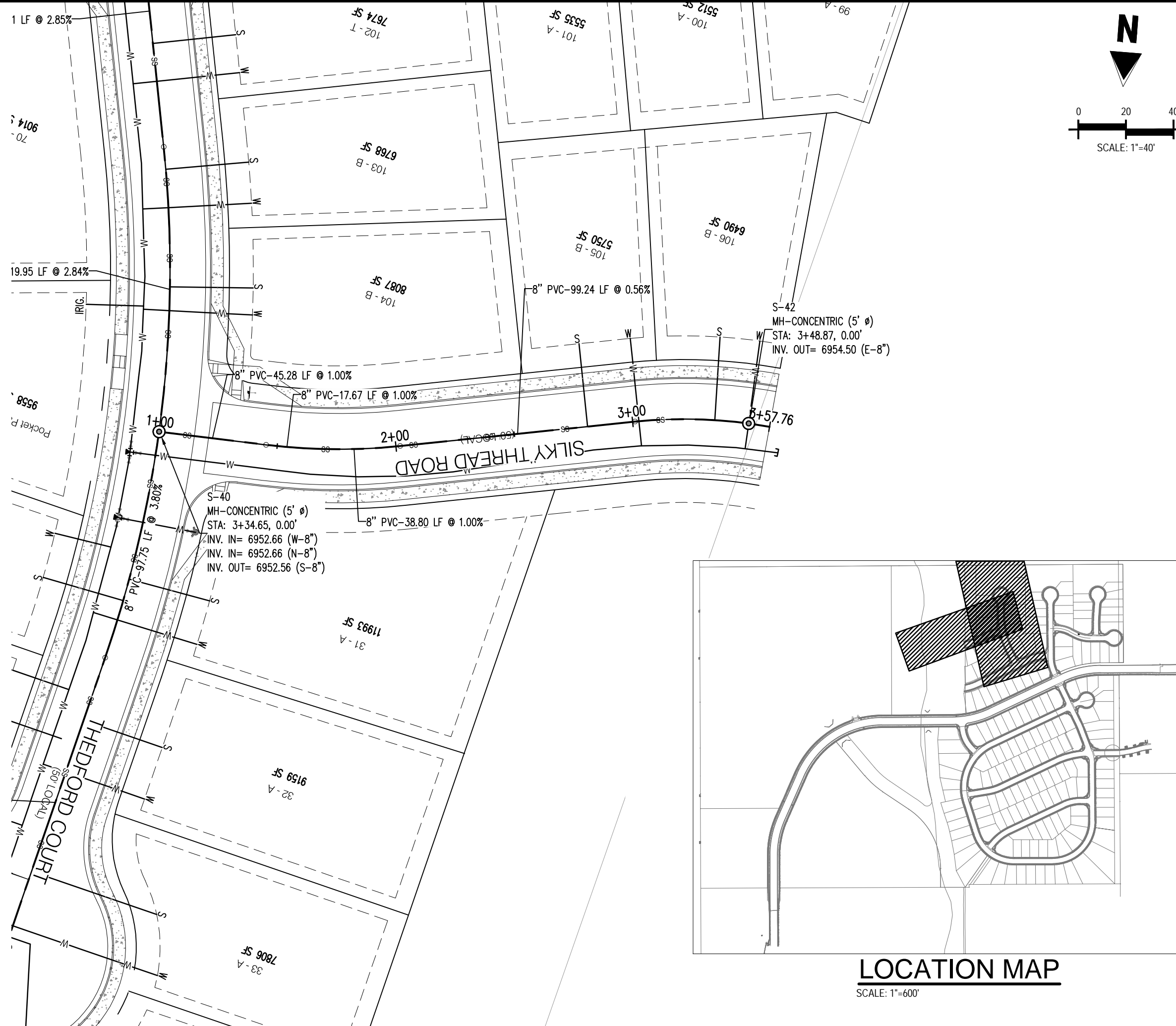
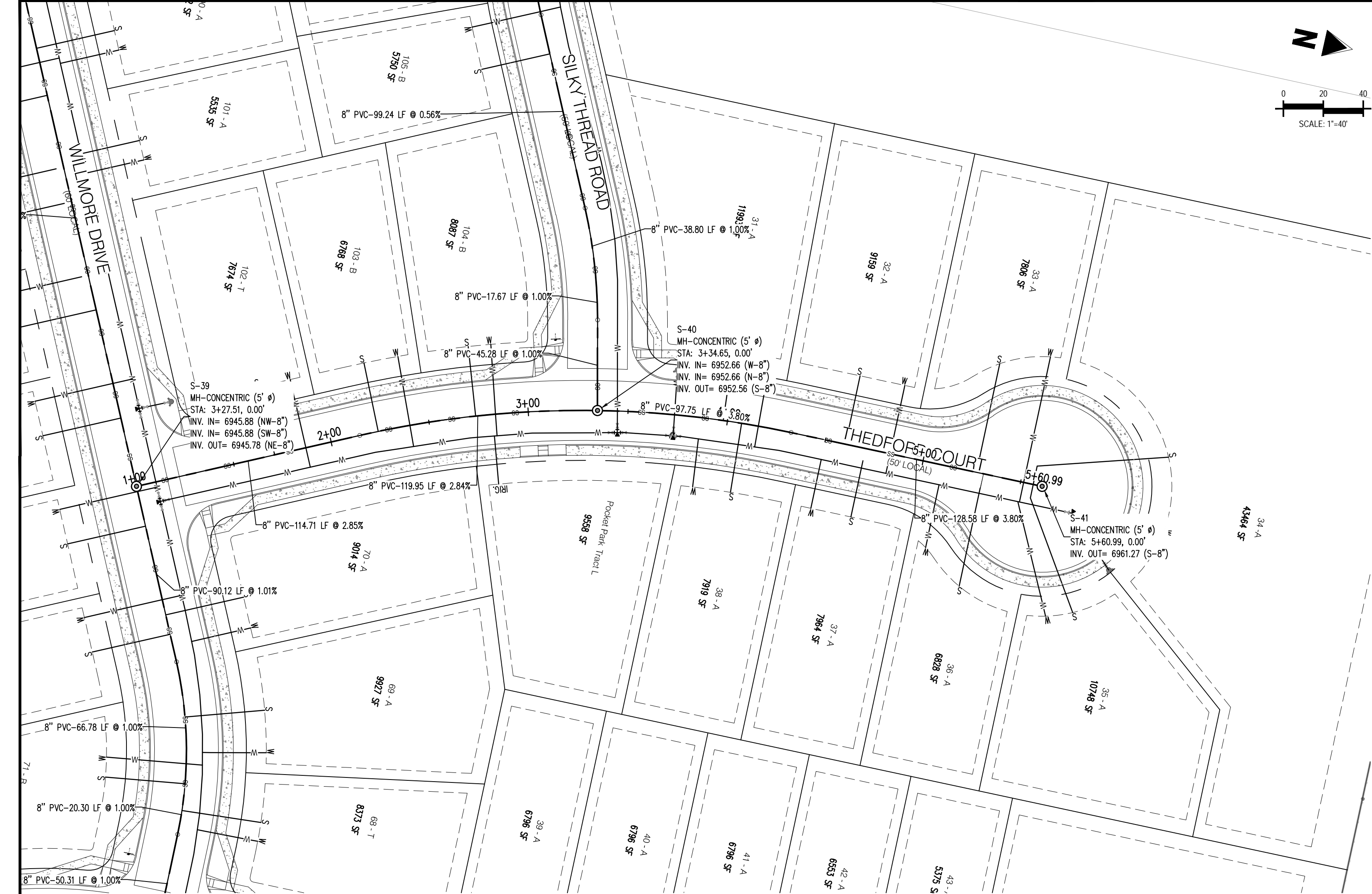
Project No:	CLH-14-20
Drawn By:	JDP
Checked By:	RGD
Date:	7/29/2019

WILLMORE DRIVE  
SANITARY PLAN & PROFILE

**C3.11**

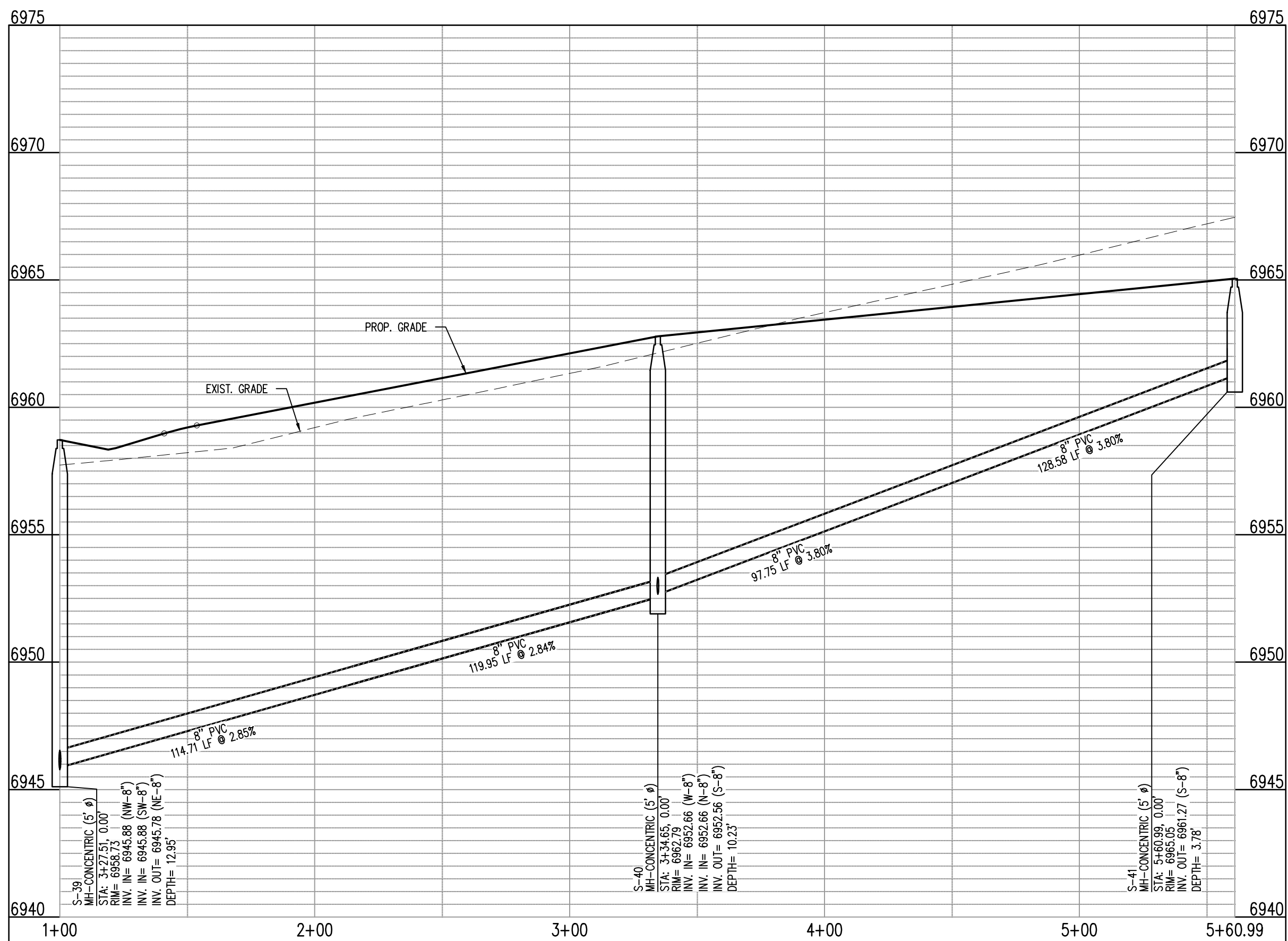
Sheet 23 of 31



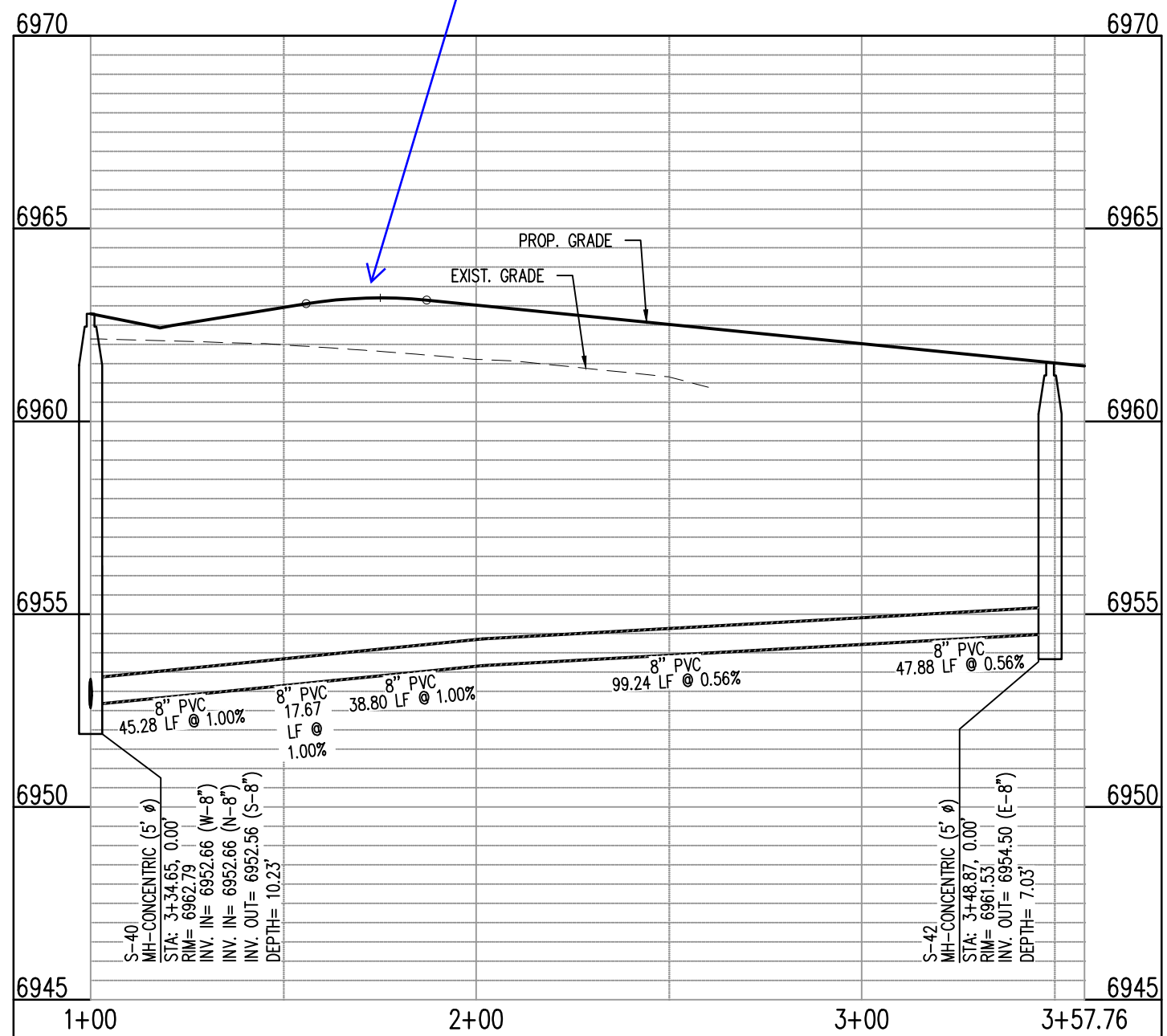


LOCATION MAP

SCALE: 1"=40'



THE FORD CT - CL - 50' ROW  
STA: 1+00 - 5+60.99  
SCALE: H: 1"=40' V: 1"=10'



SIKY THRED RD EAST - CL - 50' ROW  
STA: 1+00 - 3+57.76  
SCALE: H: 1"=40' V: 1"=10'

general comment for  
all profiles call out  
vertical curve  
information on the  
profile including K  
value.

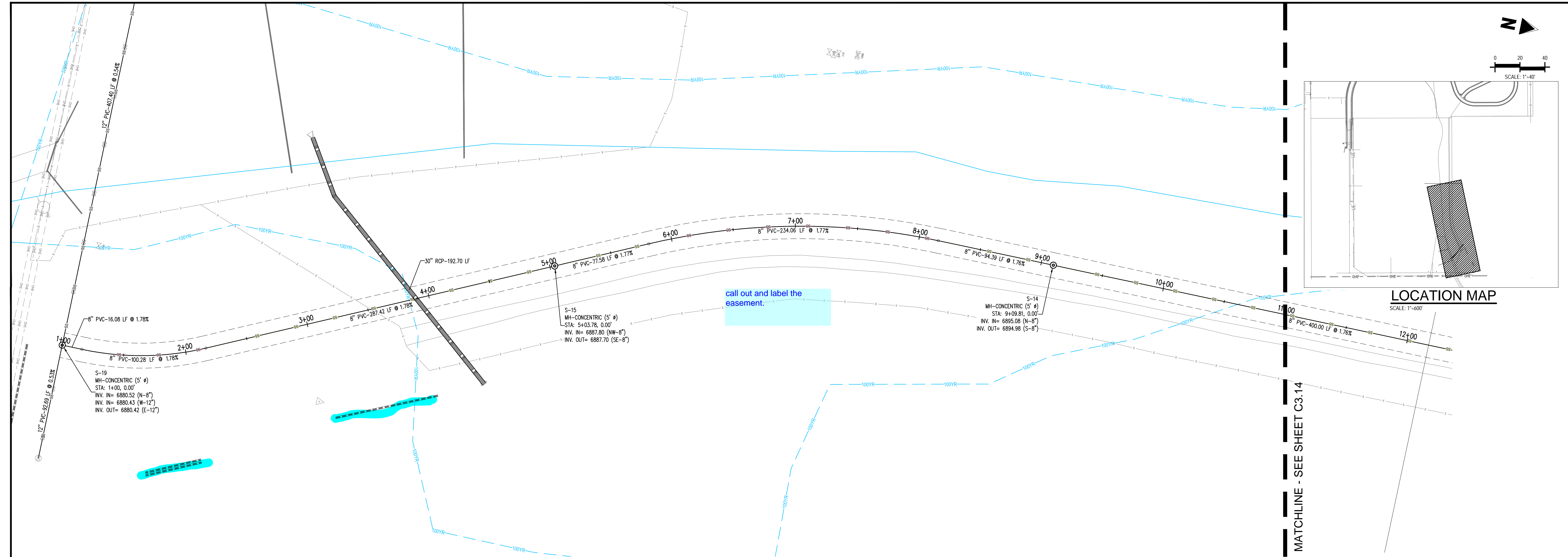


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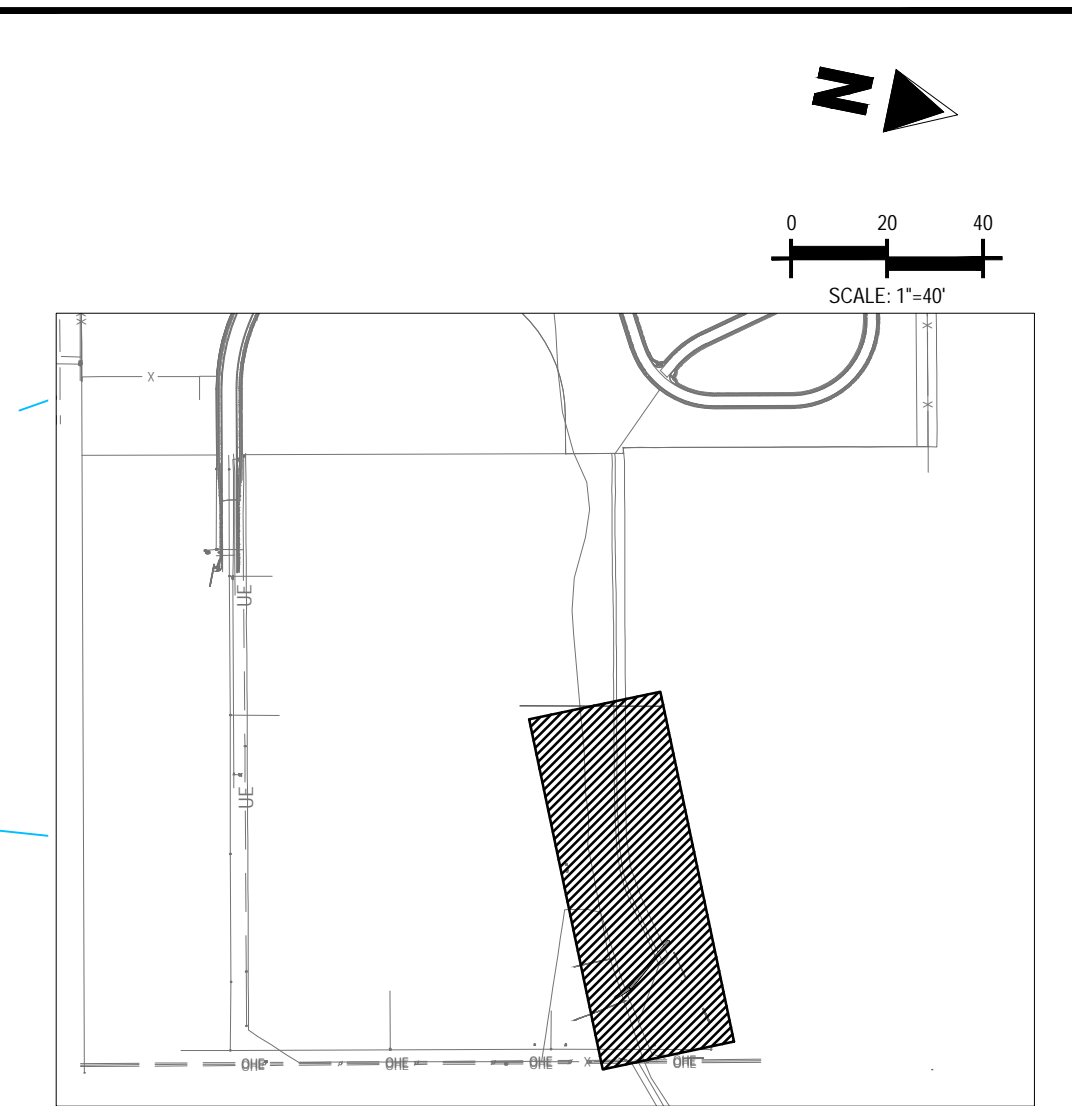
Project No:	CLH-14-20
Drawn By:	JDP
Checked By:	RGD
Date:	7/29/2019

THEDFORD COURT &  
SILKY THRED ROAD  
SANITARY PLAN & PROFILE

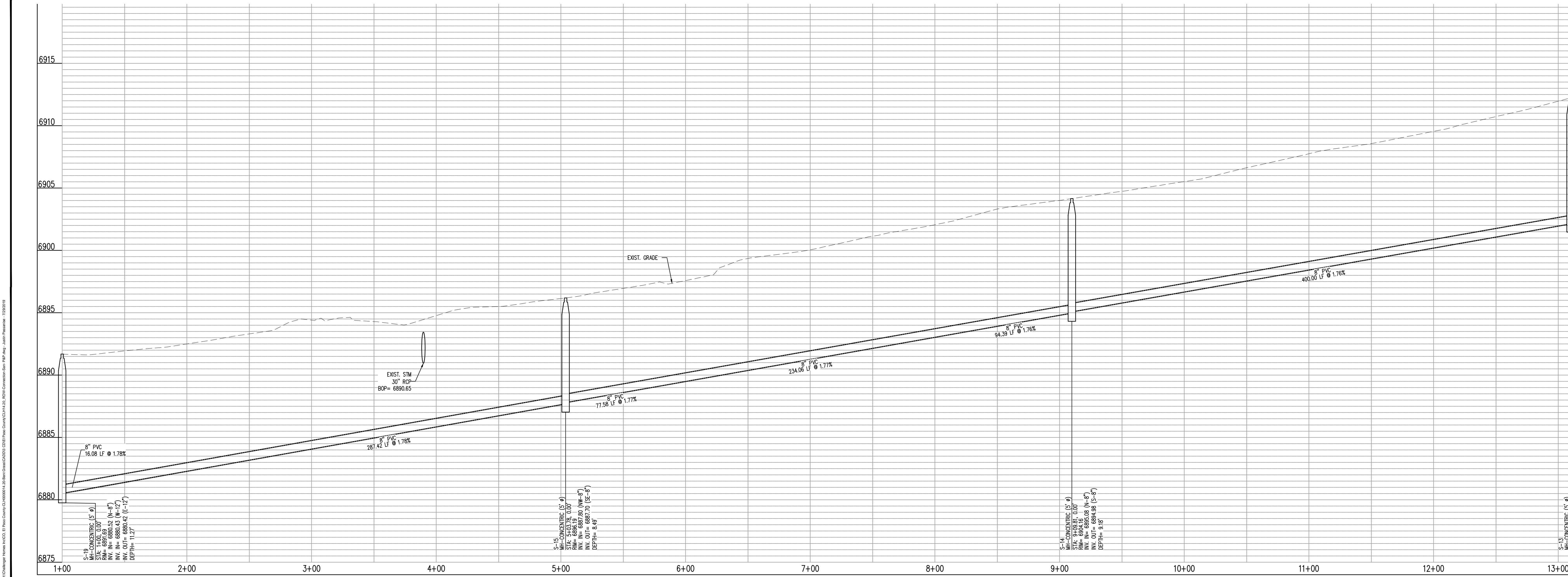




MATCHLINE - SEE SHEET C3.14



LOCATION MAP



CONSTRUCTION PLANS  
BENT GRASS RESIDENTIAL FILING NO. 2

BENT GRASS MEADOWS DRIVE  
FALCON, CO 80831 EL PASO COUNTY

#	Date	Issue / Description	Init.
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Project No: CLH-14-20  
Drawn By: JDP  
Checked By: RGD  
Date: 7/29/2019

RIGHT OF WAY CONNECTION  
SANITARY PLAN & PROFILE





CONSTRUCTION PLANS  
BENT GRASS RESIDENTIAL FILING NO. 2

BENT GRASS MEADOWS DRIVE  
FALCON, CO 80831 EL PASO COUNTY

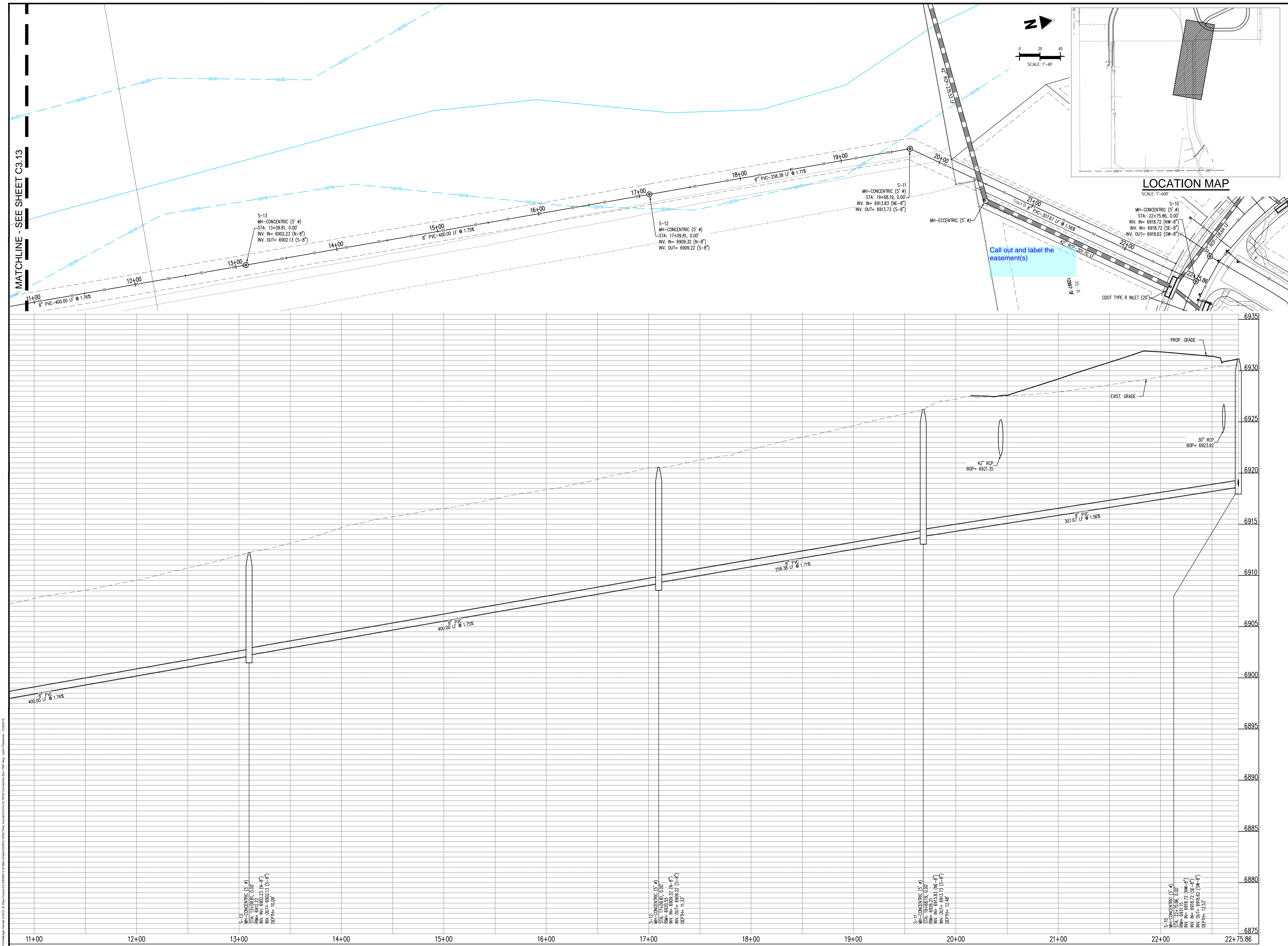
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Project No:	CLH-14.20
Drawn By:	JDP
Checked By:	RGD
Date:	7/29/2019

RIGHT OF WAY CONNECTION  
SANITARY PLAN & PROFILE

C3.14

Sheet 26 of 31



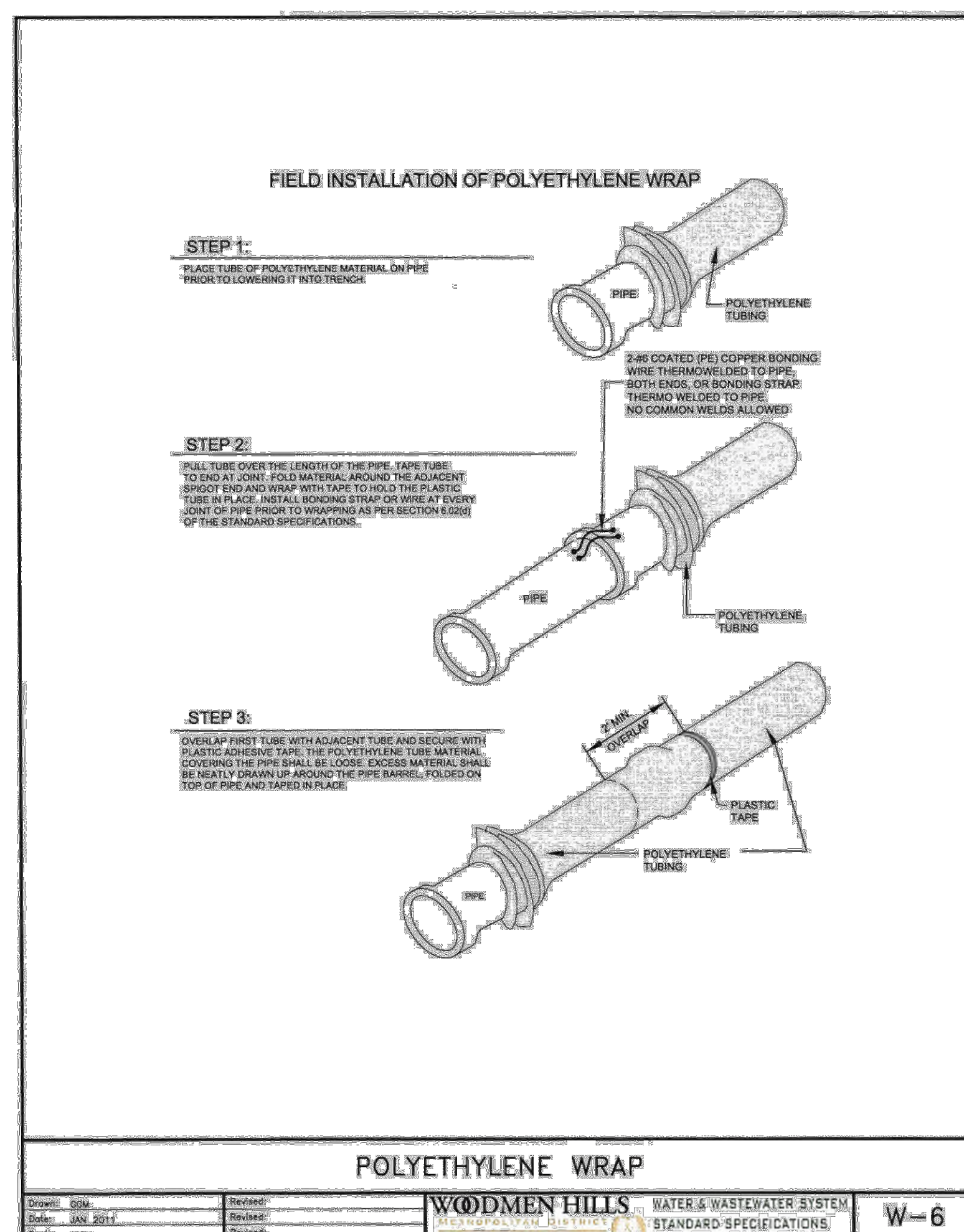
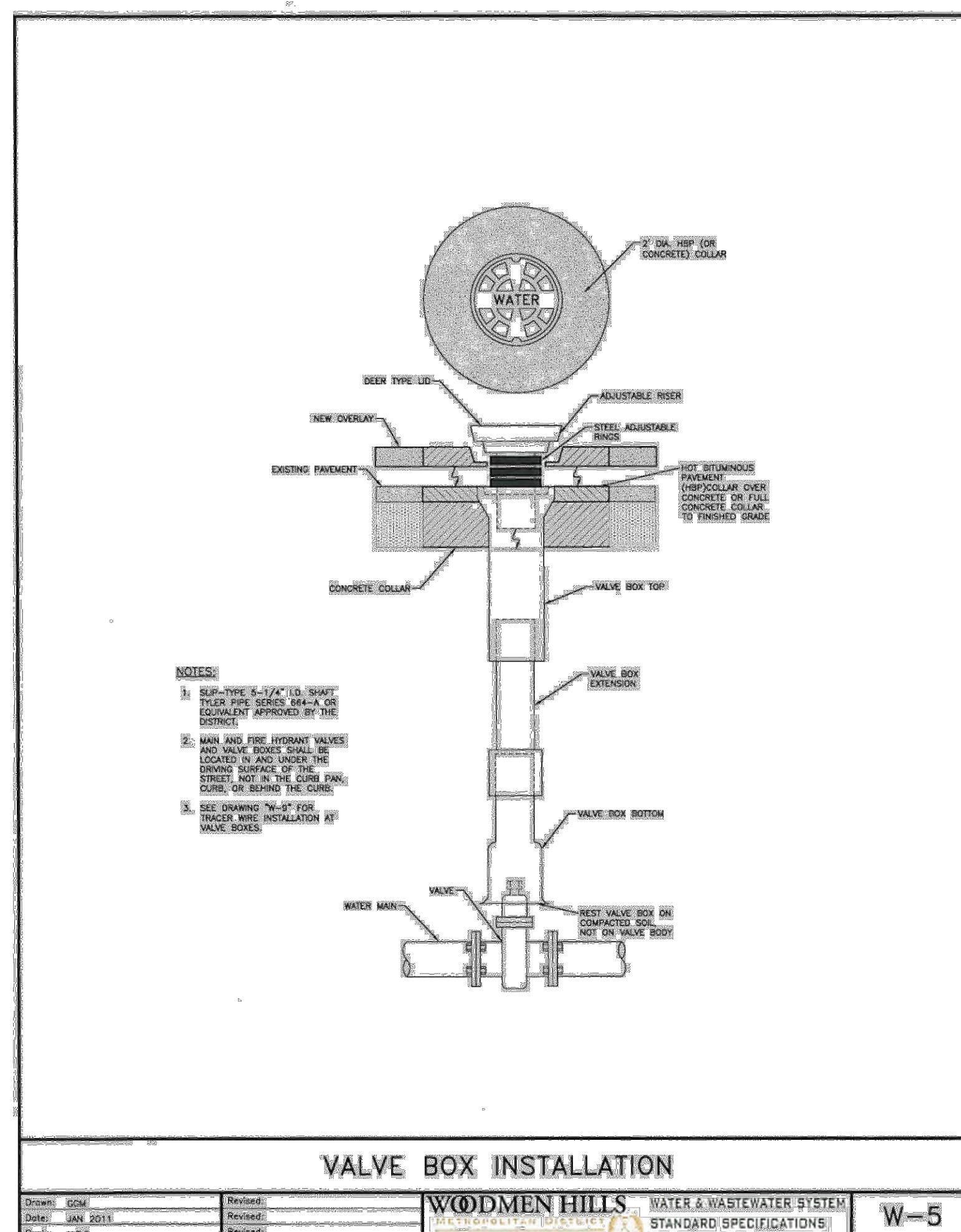
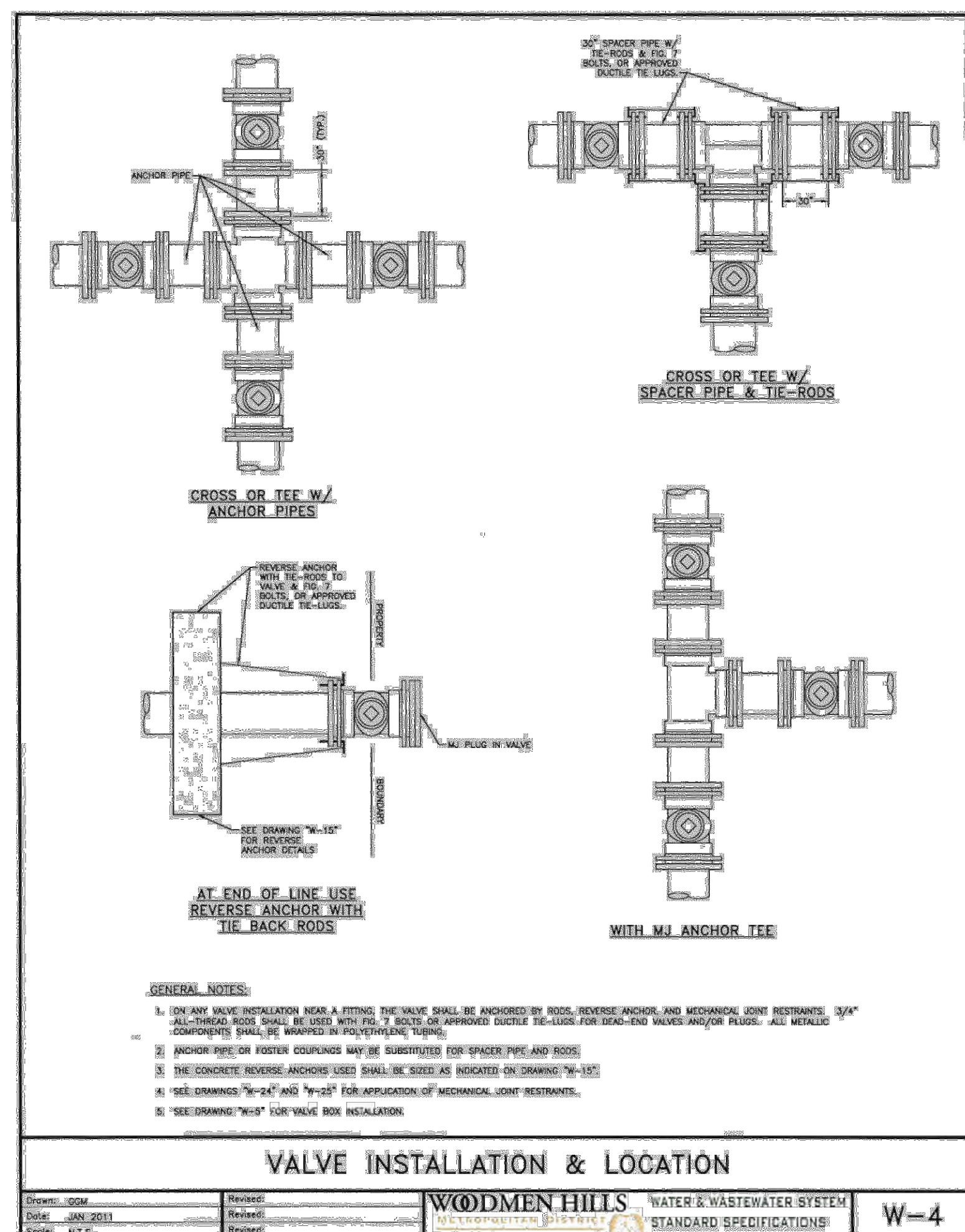
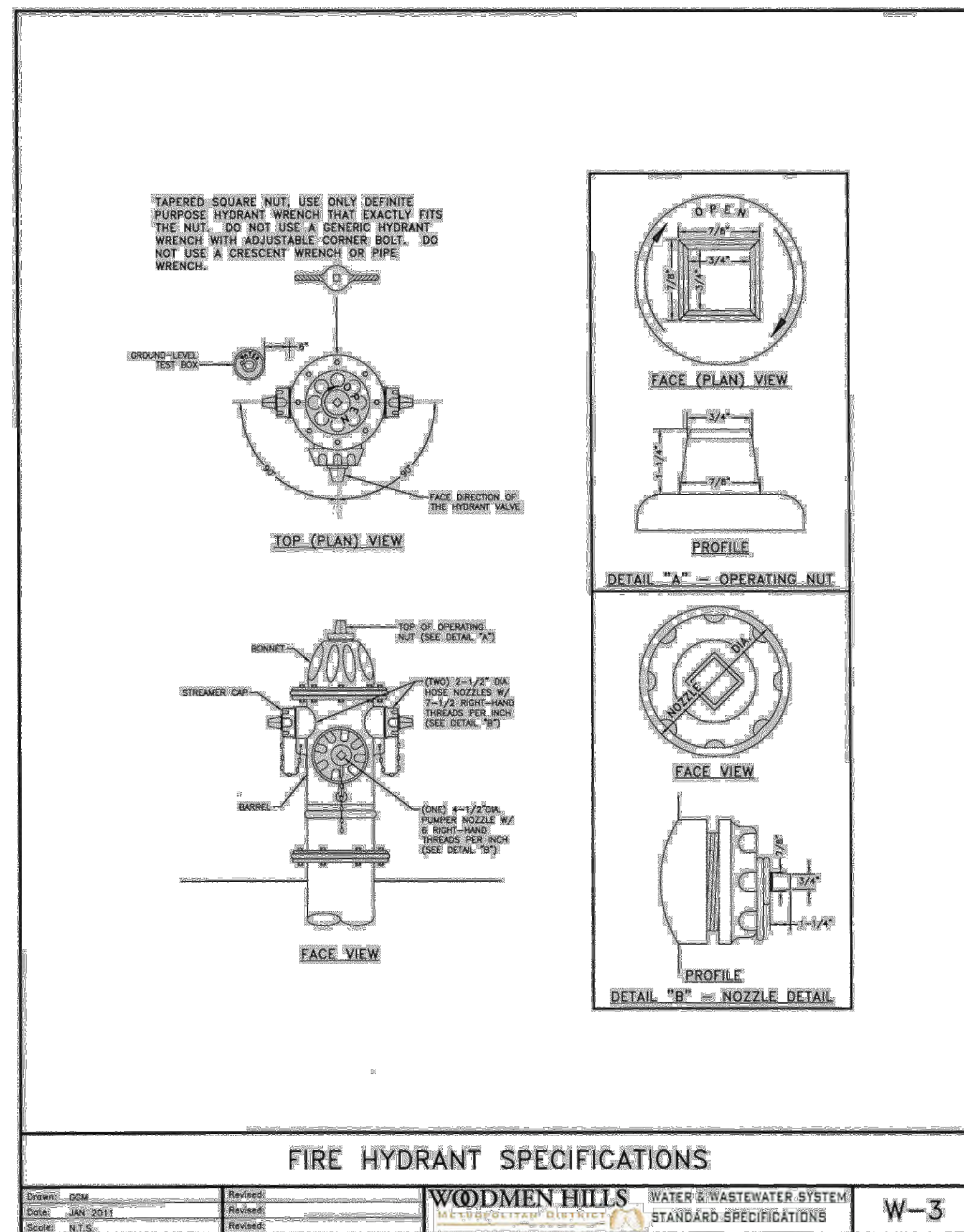
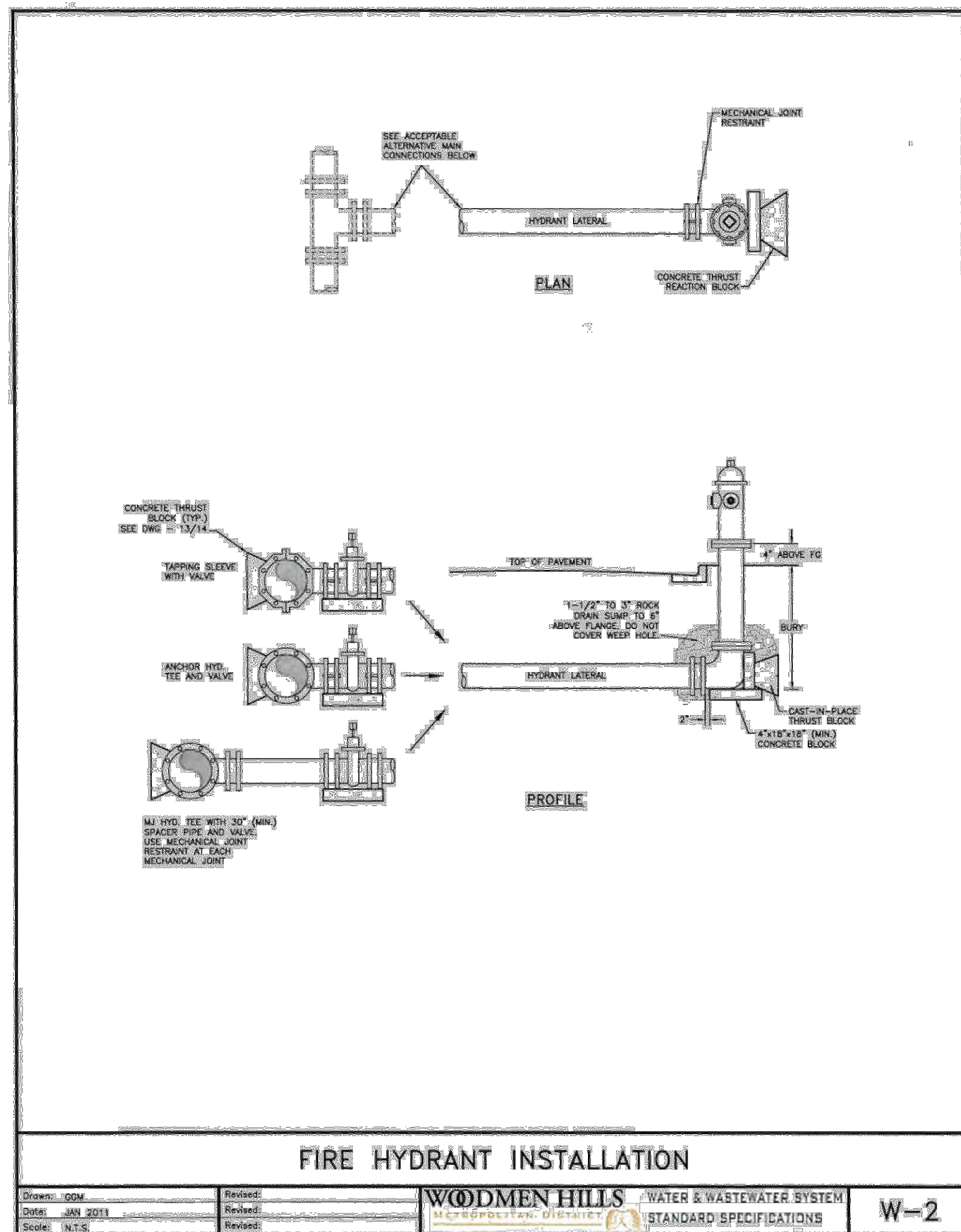
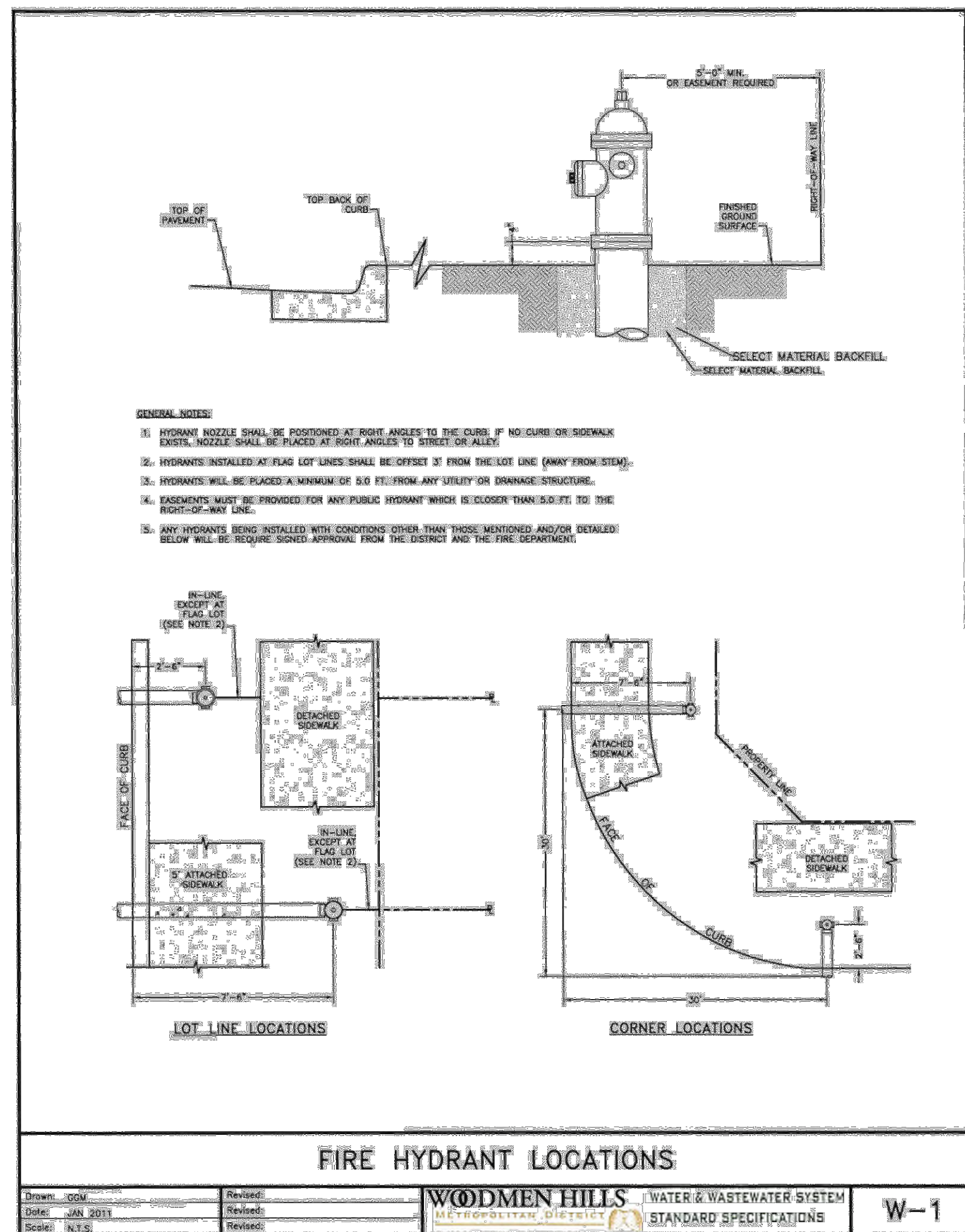




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Project No:	CLH-14-20
Drawn By:	JDP
Checked By:	RGD
Date:	7/29/2019

UTILITY DETAILS



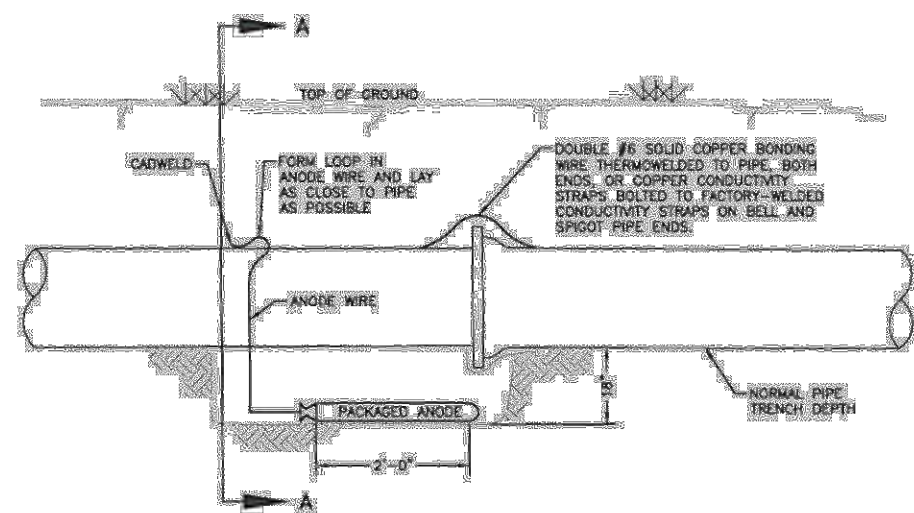




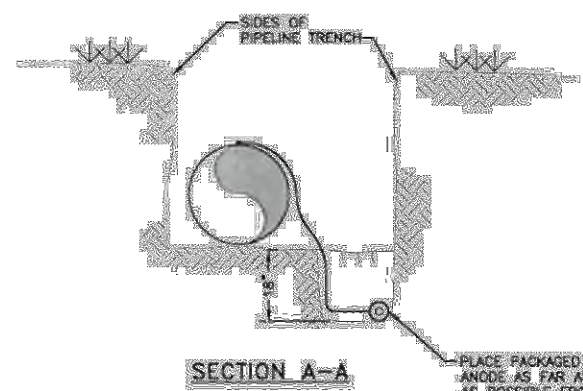
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Project No:	CUH-14-20
Drawn By:	JDP
Checked By:	RGD
Date:	7/29/2019

UTILITY DETAILS



ELEVATION

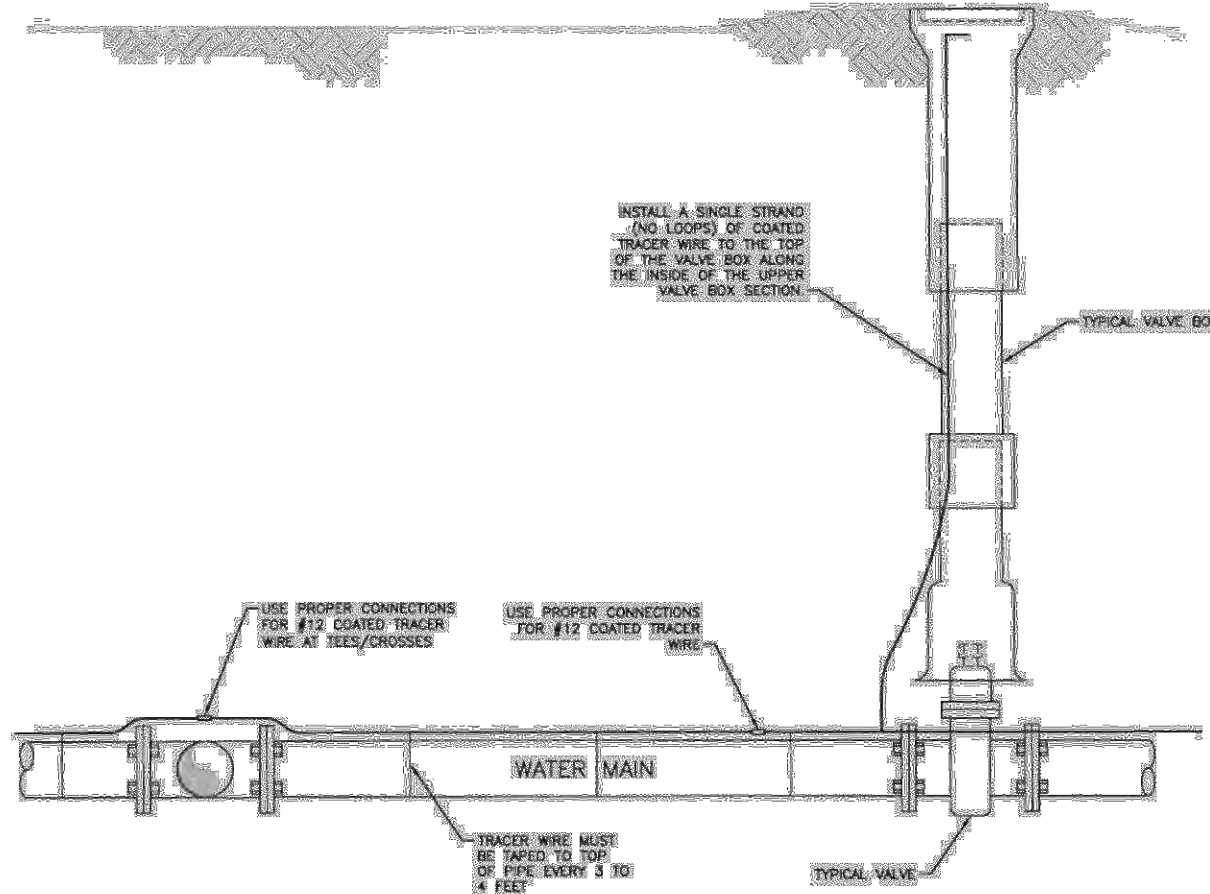


SECTION A-A

- NOTES:
1. CATHODIC CONNECTION TO BE PRIMED AND COATED CAREFULLY. PACKAGED ANODE SHOULD BE COVERED WITH FINE-SAND CONTAINING NO ROCKS OR DIRT CLUMPS, TAMPERS.
  2. WHEN ANODES ARE REQUIRED WITH METAL FITTINGS AND DISCONTINUITIES TOGETHER WITH PIPE, THE ANODES SHALL BE PLACED AND ATTACHED TO THE METAL IN SAME MANNER AS SHOWN ON THIS DRAWING. BUT ANODES CAN BE USED ON METAL FITTINGS 1/2" AND LESS IN DIAMETER AND 17/16" ANODES FOR METAL FITTINGS GREATER THAN 1/2" DIAMETER WHEN USING PVC PIPE.
  3. PACKAGED ANODE TO BE WETTED AND COVERED WITH SOIL PRIOR TO BACKFILLING.

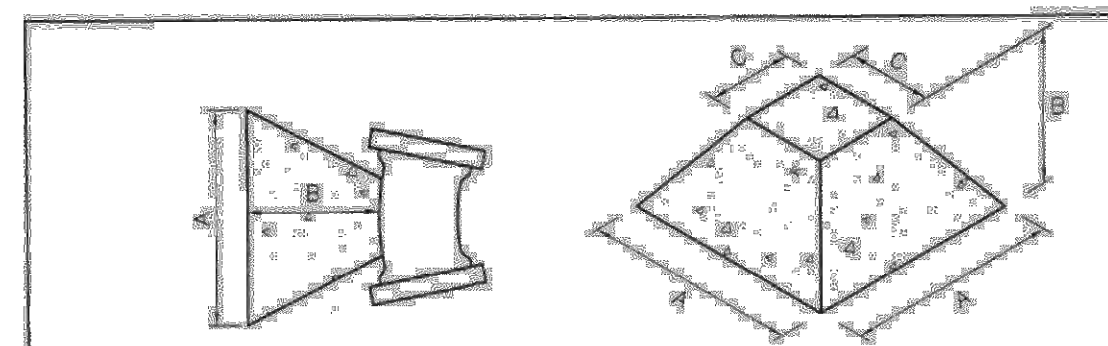
BONDING JOINT & ANODE INSTALLATION

Drawn: GDM	Revised:	WOODMEN HILLS WATER & WASTEWATER SYSTEM	W-7
Date: JAN 2011	Revised:	STANDARD SPECIFICATIONS	
Scale: N.T.S.	Revised:		



TRACER WIRE INSTALLATION DETAILS

Drawn: GDM	Revised:	WOODMEN HILLS WATER & WASTEWATER SYSTEM	W-9
Date: JAN 2011	Revised:	STANDARD SPECIFICATIONS	
Scale: N.T.S.	Revised:		



NOTE: USE THE FOLLOWING VALUES FOR 10"

VCL (cfs)	A	B		C		D	
		ft <sup>2</sup>	ft <sup>3</sup> /sec	ft <sup>2</sup>	ft <sup>3</sup> /sec	ft <sup>2</sup>	ft <sup>3</sup> /sec
5	2-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
6	2-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
7	2-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
8	3-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
9	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
10	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
11	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
12	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
13	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
14	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
15	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
16	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
17	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
18	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
19	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
20	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
21	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
22	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
23	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
24	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
25	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
26	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
27	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
28	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
29	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
30	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
31	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
32	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
33	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
34	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
35	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
36	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
37	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
38	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
39	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
40	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
41	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
42	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
43	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
44	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
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46	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
47	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
48	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
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53	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
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59	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
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61	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
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63	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
64	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
65	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
66	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
67	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
68	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
69	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
70	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
71	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
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75	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
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77	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
78	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
79	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
80	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
81	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
82	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
83	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
84	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
85	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
86	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
87	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
88	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
89	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
90	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
91	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
92	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
93	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
94	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
95	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
96	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
97	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
98	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
99	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
100	4-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

ALL WATER MAINS GREATER THAN 12" IN DIAMETER SHALL HAVE THRUST BLOCKS INSTALLED AS SHOWN ON THE CONNECTION DOCUMENTS.

SEE VOLUMES ABOVE FOR A, B & C DIM.				
FITTING	4"	6"	8"	12"
TEE	1/2 yd.	1/2 yd.	1/2 yd.	2 yd.
90° BEND	1/2 yd.	1/2 yd.	1 1/4 yd.	3 yd.
45° BEND	1/2 yd.	1/2 yd.	1/2 yd.	1 1/2 yd.
22-1/2° BEND	1/2 yd.	1/2 yd.	1/2 yd.	1/2 yd.
11-1/4° BEND	1/2 yd.	1/2 yd.	1/2 yd.	1/2 yd.

THRUST BLOCK DATA

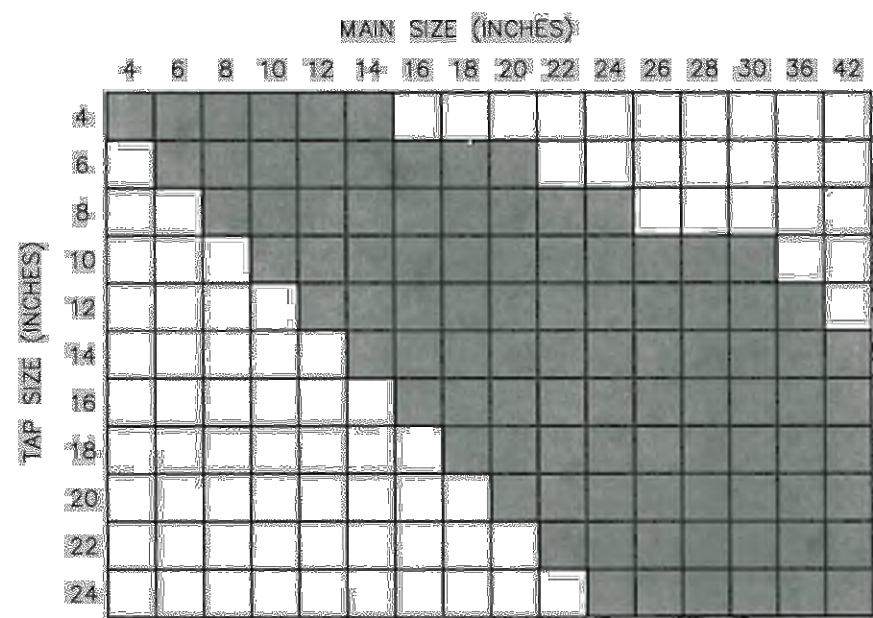
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Date: JAN 2011	Revised:	STANDARD SPECIFICATIONS	
Scale: N.T.S.	Revised:		

CONCRETE THRUST BLOCKS

WATER MAIN AND TAP SIZE COMBINATIONS WHICH REQUIRE A CONCRETE THRUST REACTION BLOCK BEHIND THE MAIN AT THE TAPPING SLEEVE OR SADDLE.

ALL WATER MAINS

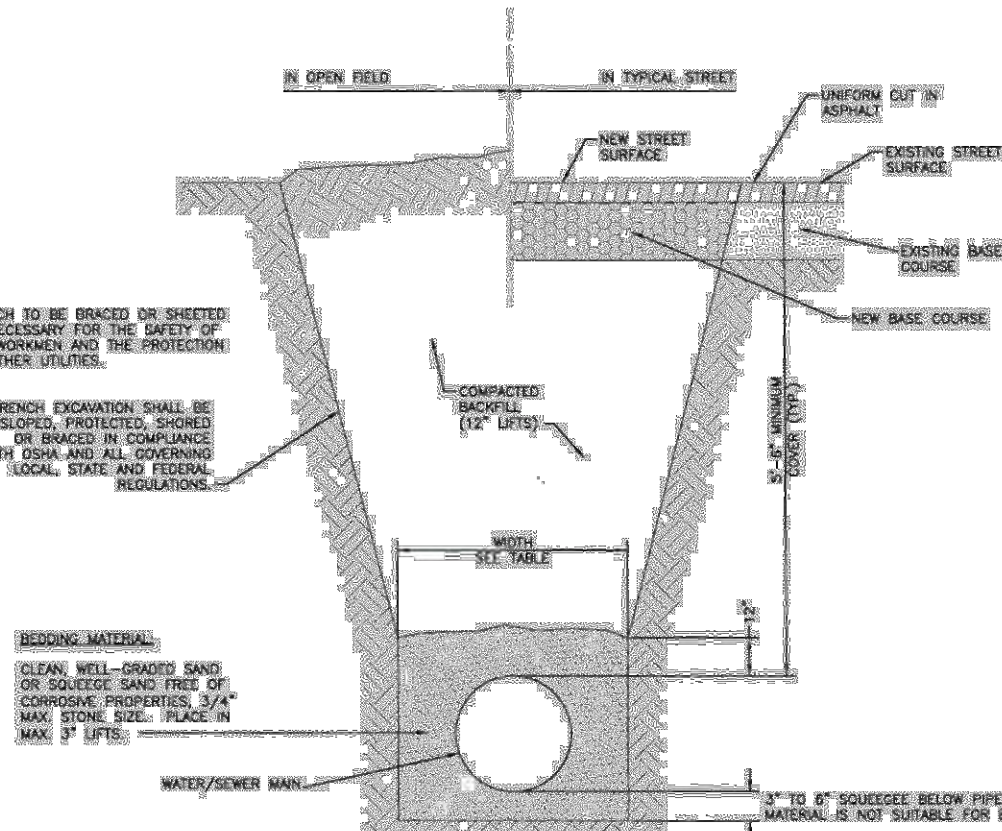
INDICATES CONCRETE THRUST BLOCK REQUIRED.



ANY THRUST REACTION BLOCK REQUIREMENTS FOR WATER MAIN AND TAP SIZE COMBINATIONS OTHER THAN THOSE SHOWN ABOVE WILL REQUIRE SPECIAL DESIGN APPROVAL BY THE DISTRICT.

THRUST BLOCKS REQUIRED FOR TAPS

Drawn: GDM	Revised:	WOODMEN HILLS WATER & WASTEWATER SYSTEM	W-11
Date: JAN 2011	Revised:	STANDARD SPECIFICATIONS	
Scale: N.T.S.	Revised:		



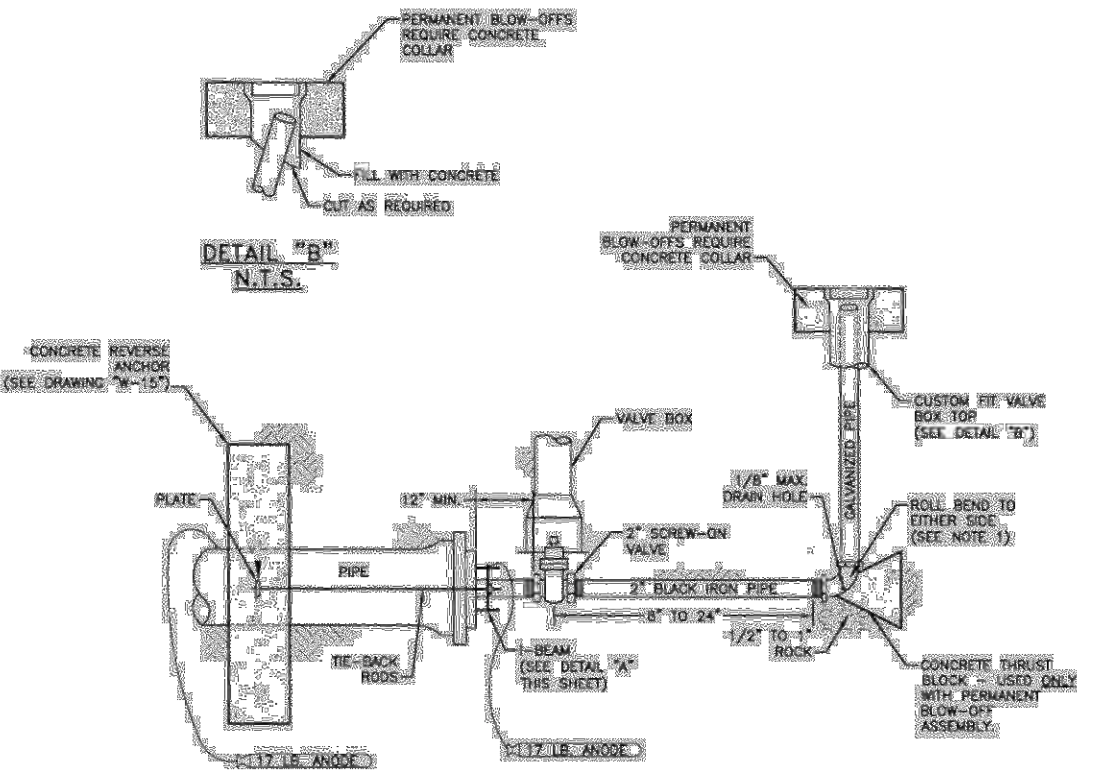
TYPICAL TRENCH SECTION

UNSTABLE TRENCH BEDDING DETAIL

PIPE DIAMETER	MINIMUM WIDTH	MAXIMUM WIDTH
4"	2'-0"	3'-0"
6"	2'-0"	3'-0"
8"	2'-0"	3'-0"
10"	2'-0"	3'-0"
12"	2'-0"	3'-0"
14"	2'-0"	3'-0"
16"	2'-0"	3'-0"
18"	2'-0"	3'-0"
20"	2'-0"	3'-0"
22"	2'-0"	3'-0"
24"	2'-0"	3'-0"
26"	2'-0"	3'-0"
28"	2'-0"	3'-0"
30"	2'-0"	3'-0"
32"	2'-0"	3'-0"
34"	2'-0"	3'-0"
36"	2'-0"	3'-0"
38"	2'-0"	3'-0"
40"	2'-0"	3'-0"
42"	2'-0"	3'-0"

TYPICAL TRENCH CROSS-SECTION

Drawn: GDM	Revised:	WOODMEN HILLS WATER & WASTEWATER SYSTEM	W-12
Date: JAN 2011	Revised:	STANDARD SPECIFICATIONS	
Scale: N.T.S.	Revised:		



- NOTES:
1. IF APPROPRIATE LOCATION FOR DISCHARGED WATER CANNOT BE REACHED BY ROLLING THE BEND, ADDITIONAL BENDS MAY BE REQUIRED BY THE INSPECTOR.
  2. COAT THE BEND, BEAM AND BLACK/IRON PIPE WITH EPOXY POLYMER/PAINT COATING TO MAKE MIN.
  3. TAPING BLOW-OFF ASSEMBLY MUST BE FULLY SUPPORTED, CONCRETE STEPPING STONES MAY BE REQUIRED.
  4. PIPE COAT APPROVED FOR USE IN POTABLE WATER SYSTEMS MUST BE USED ON ALL THREADED JOINTS.

TEMP & PERMANENT BLOW-OFF ASSEMBLIES FOR 6" & 8" MAINS

Drawn: GDM	Revised:	WOODMEN HILLS WATER & WASTEWATER SYSTEM	W-18
Date: JAN 2011	Revised:	STANDARD SPECIFICATIONS	
Scale: N.T.S.	Revised:		



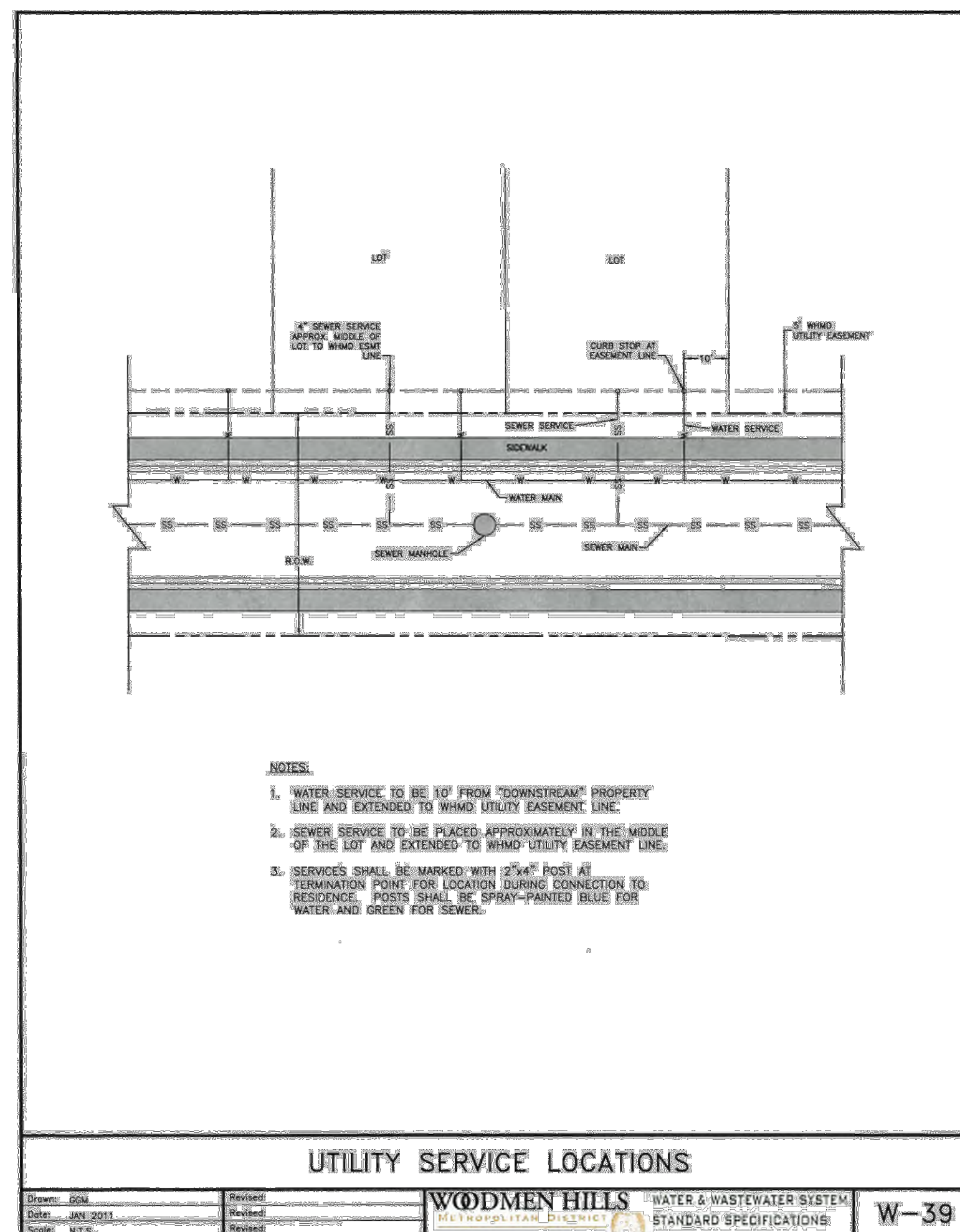
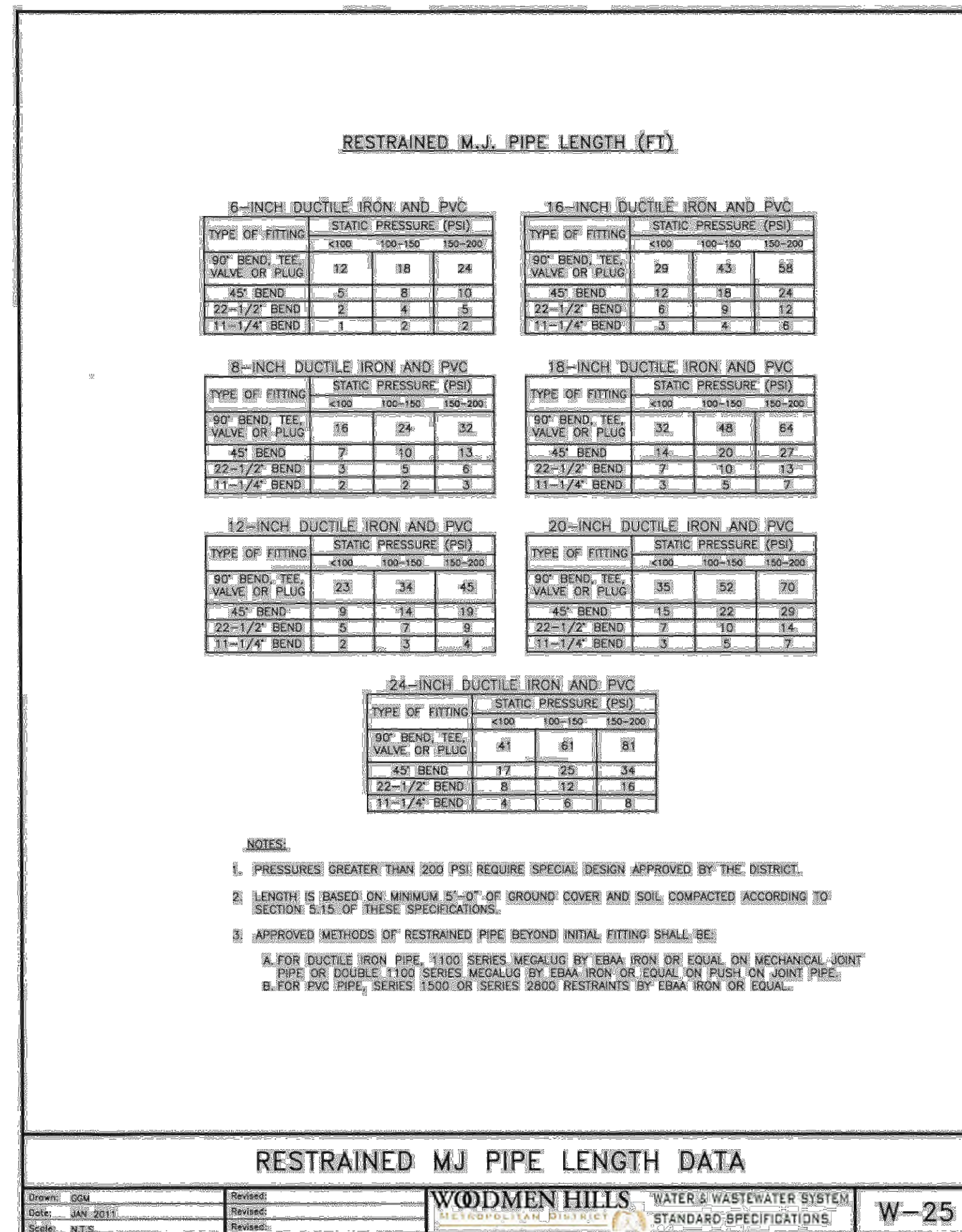
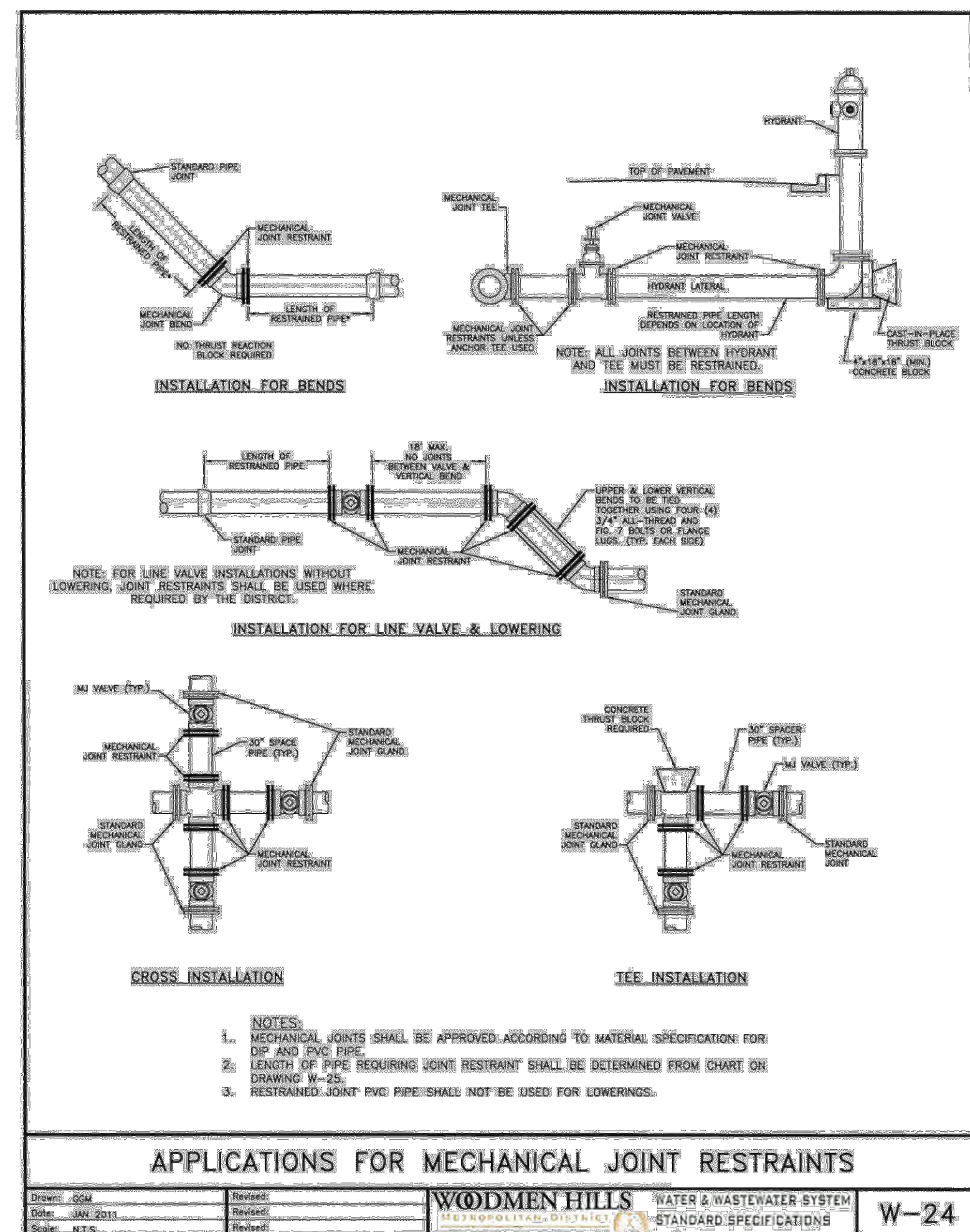
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Project No:	CLH-14-20
Drawn By:	JDP
Checked By:	RGD
Date:	7/29/2019

## UTILITY DETAILS

C4.02

Sheet 29 of 31



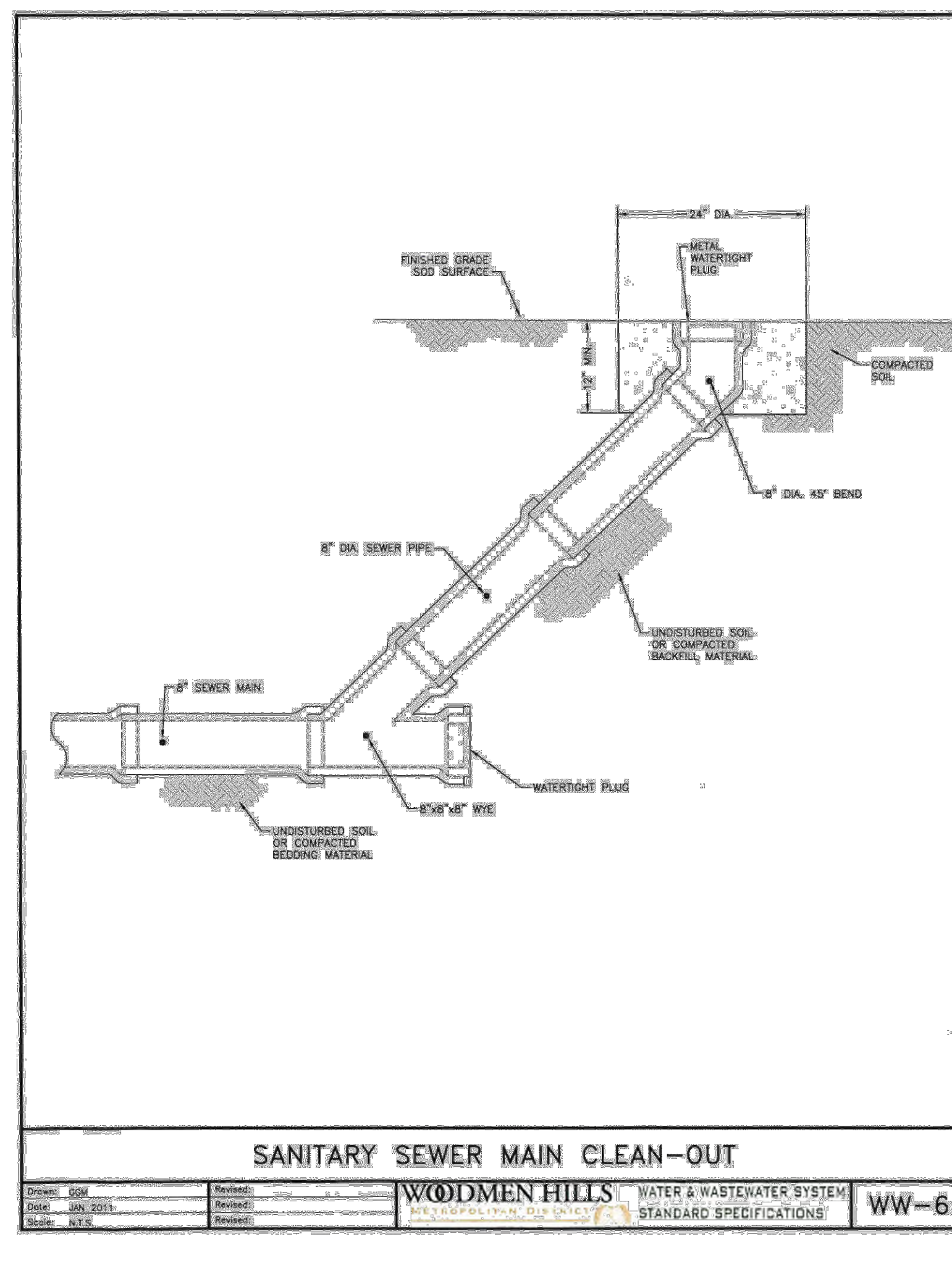
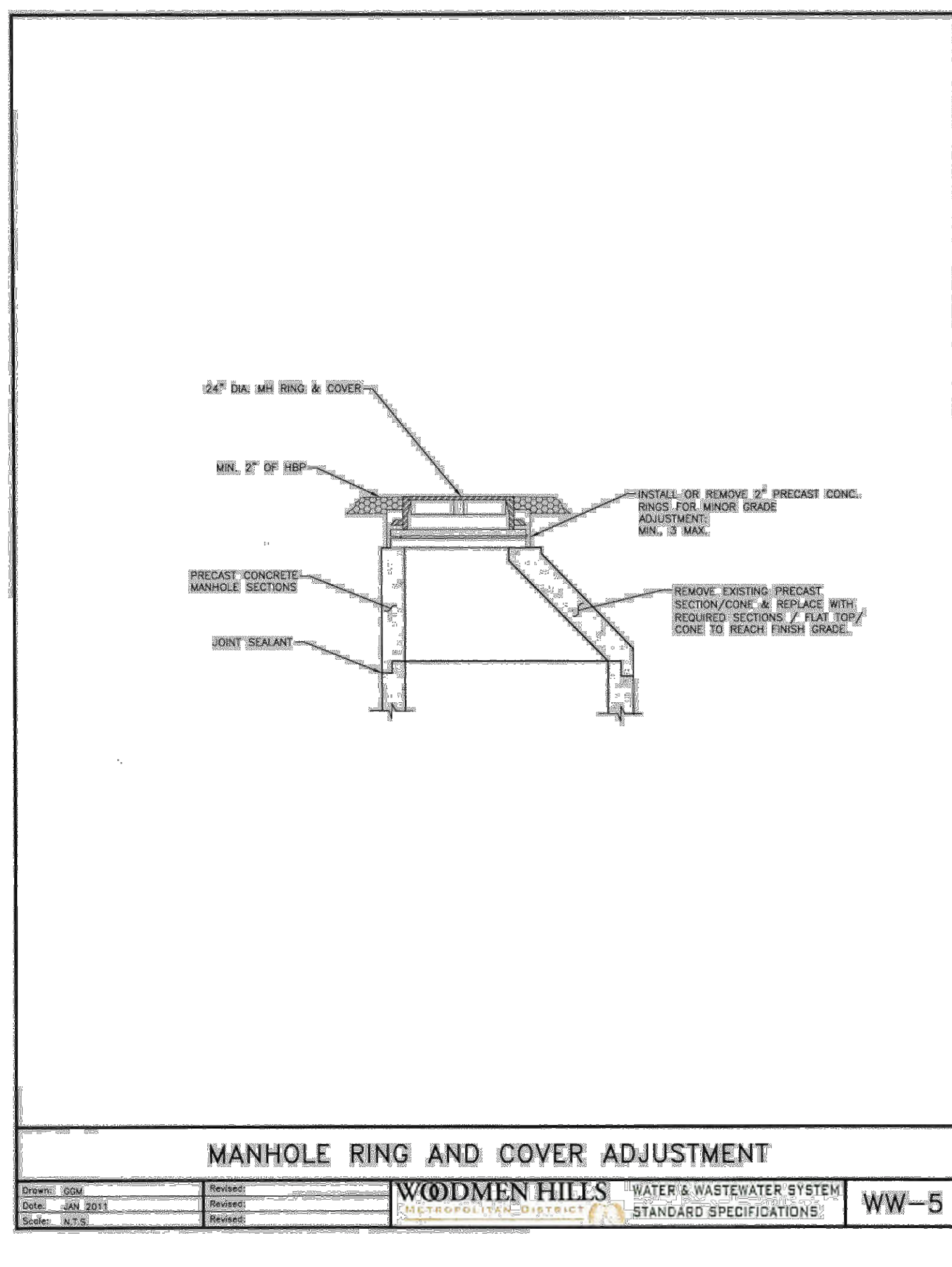
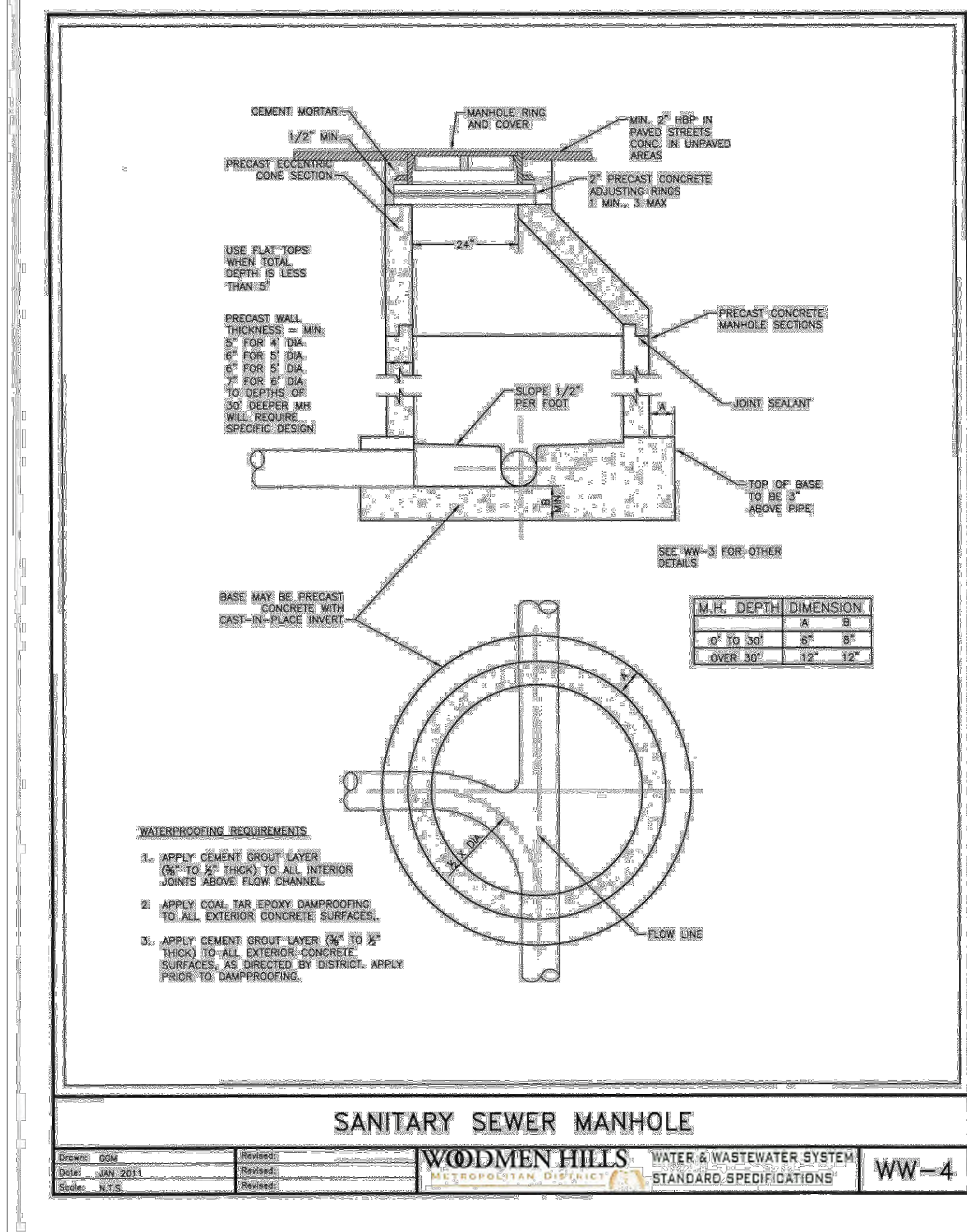
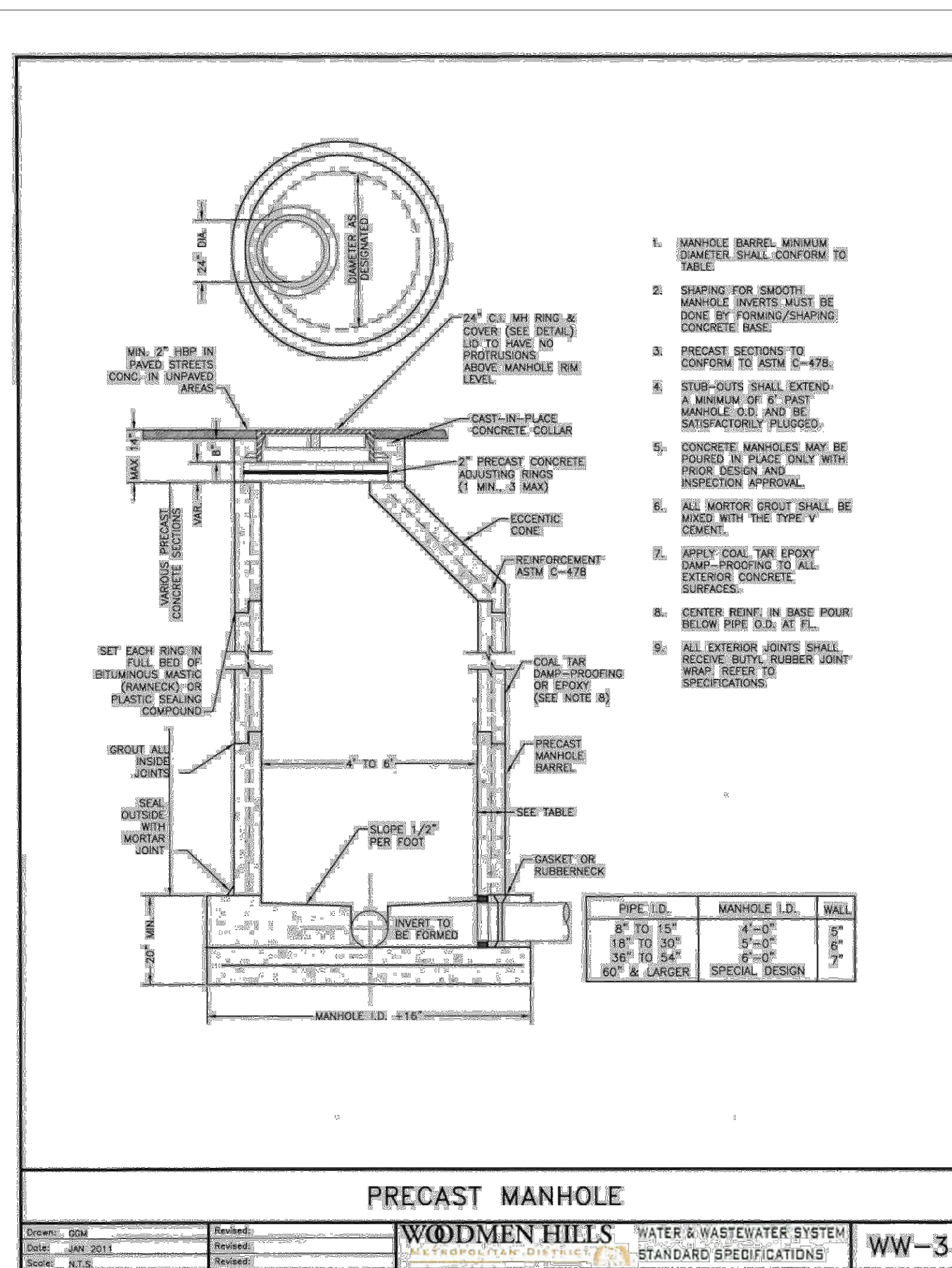
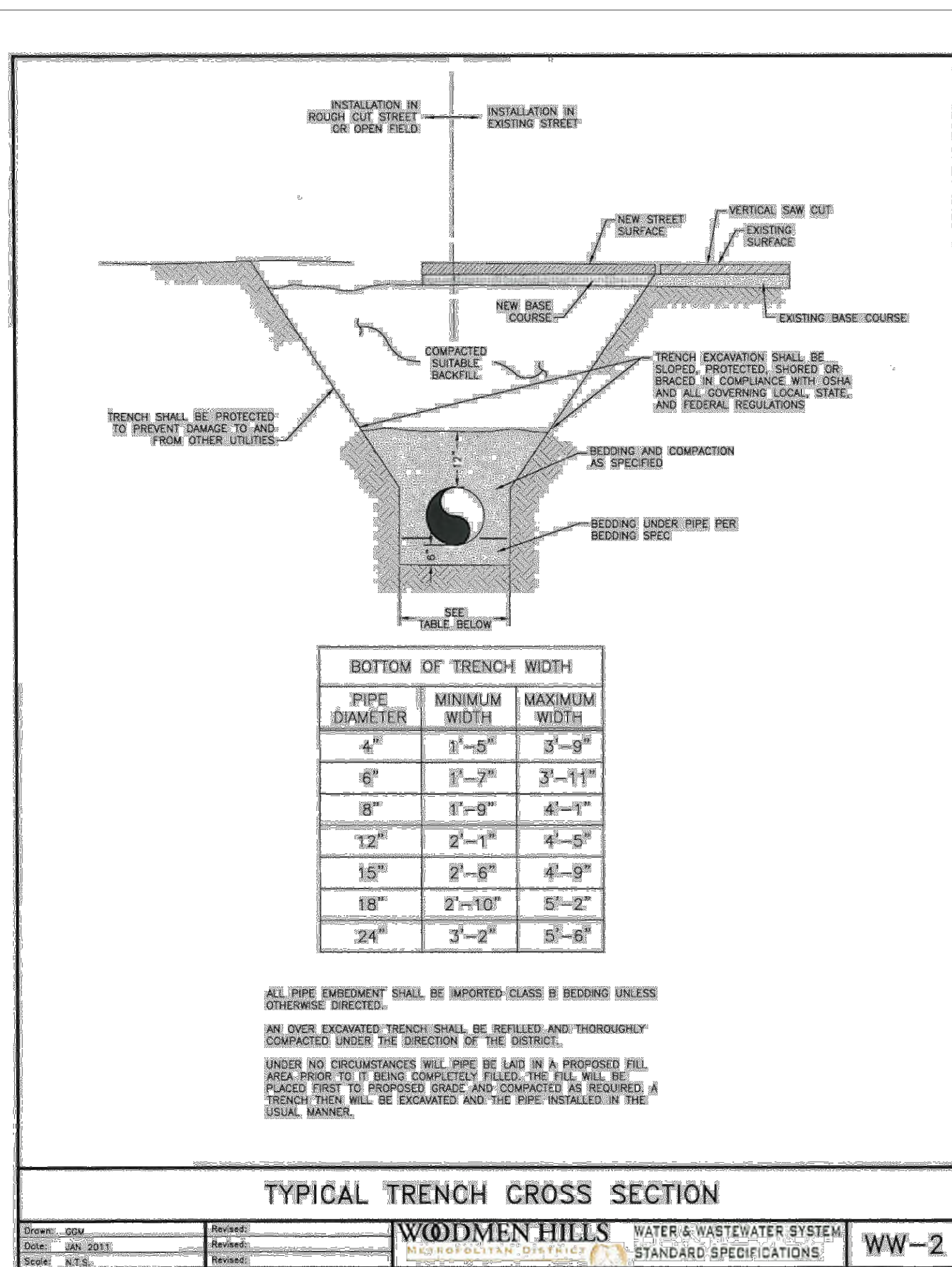
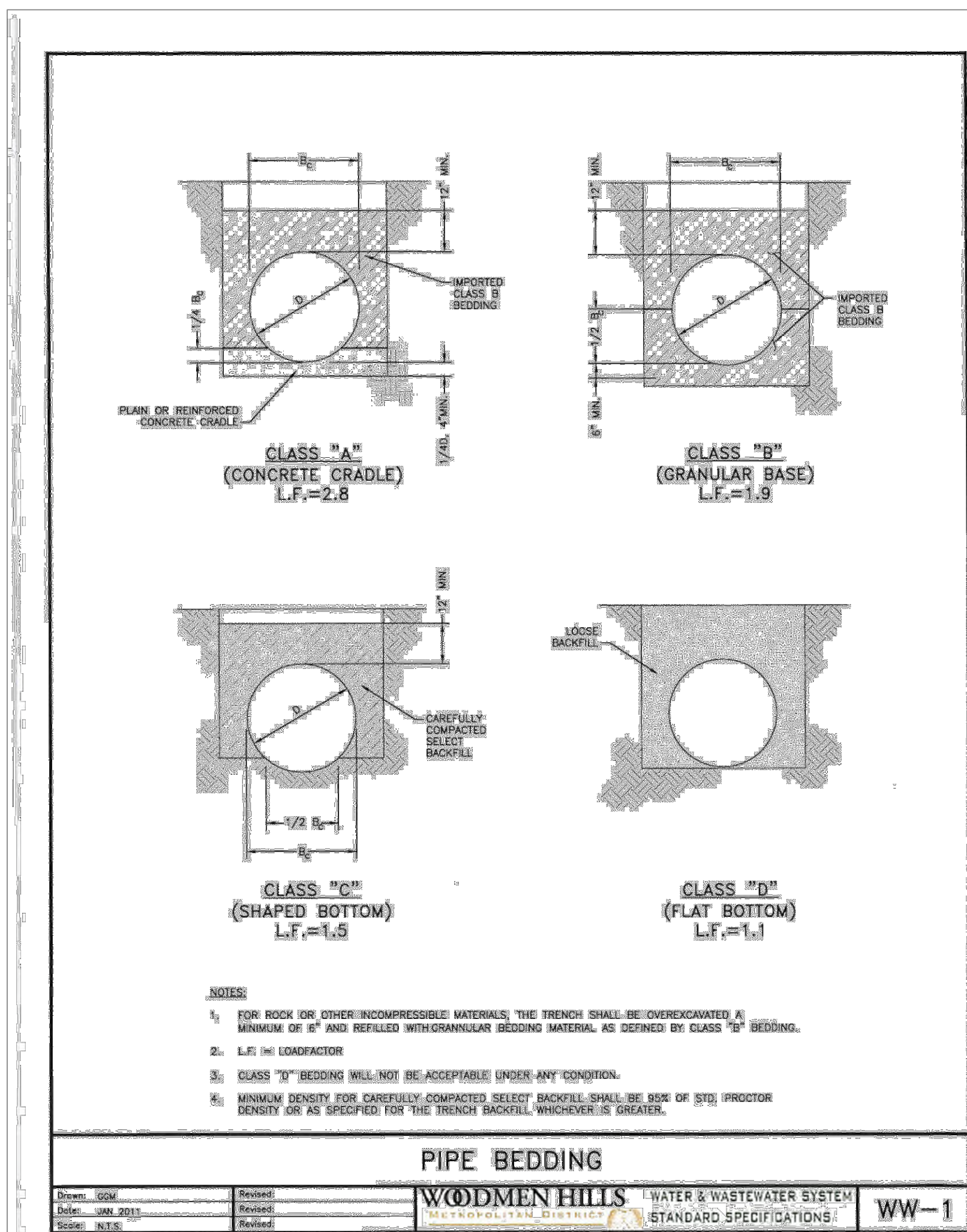




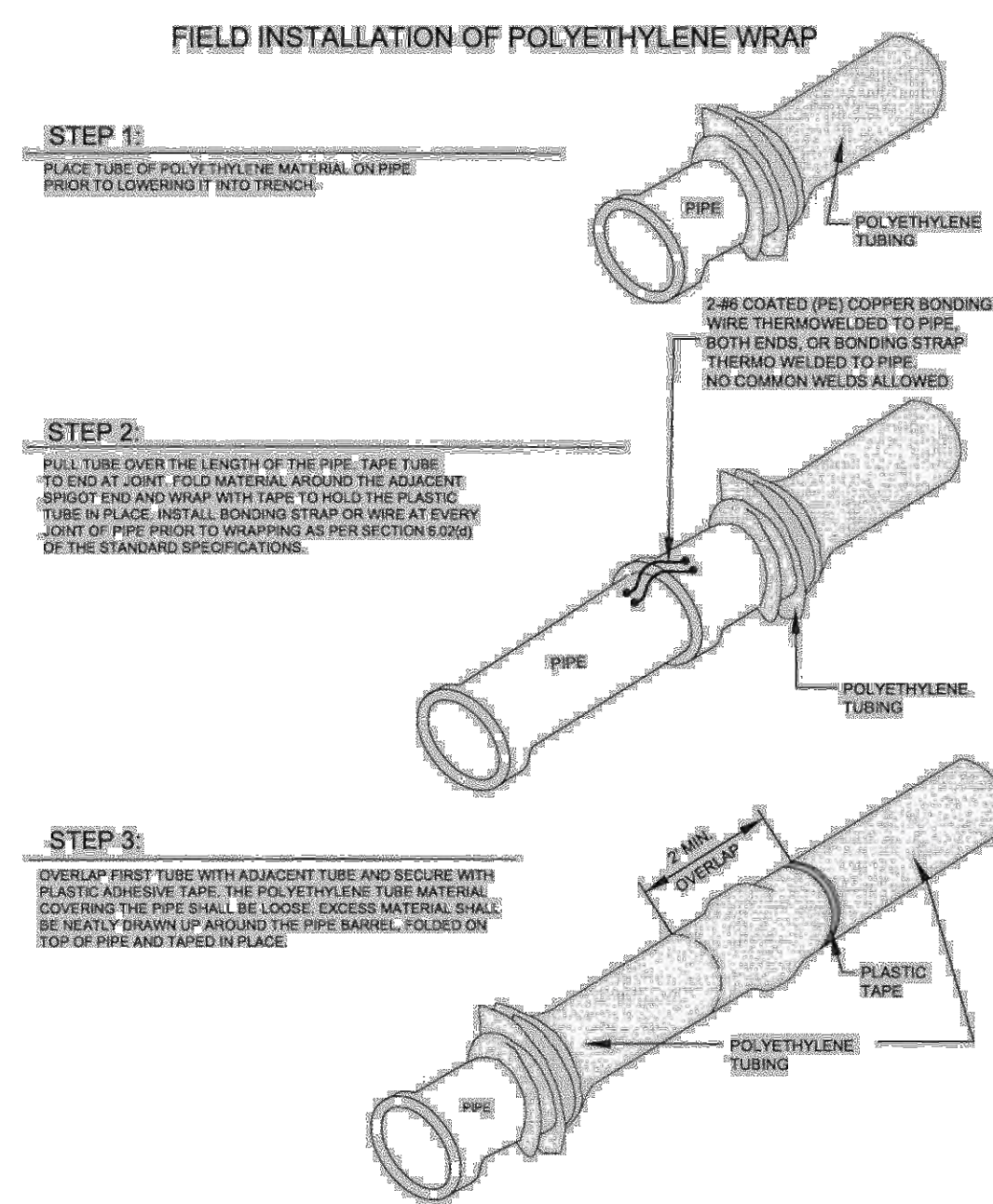
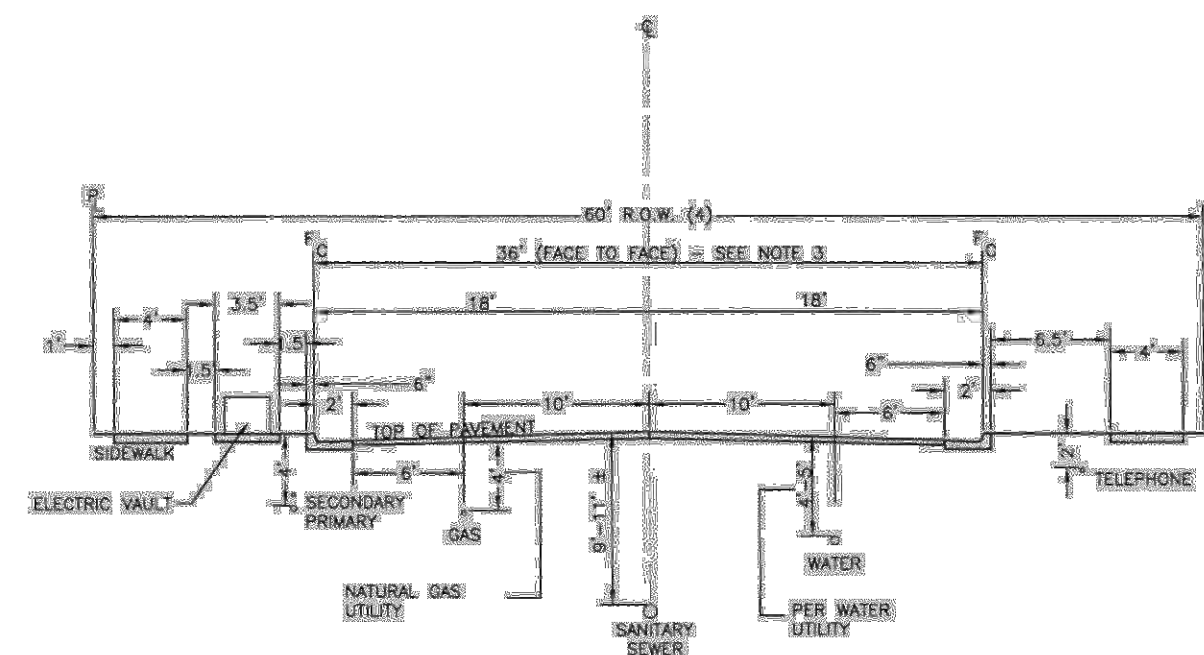
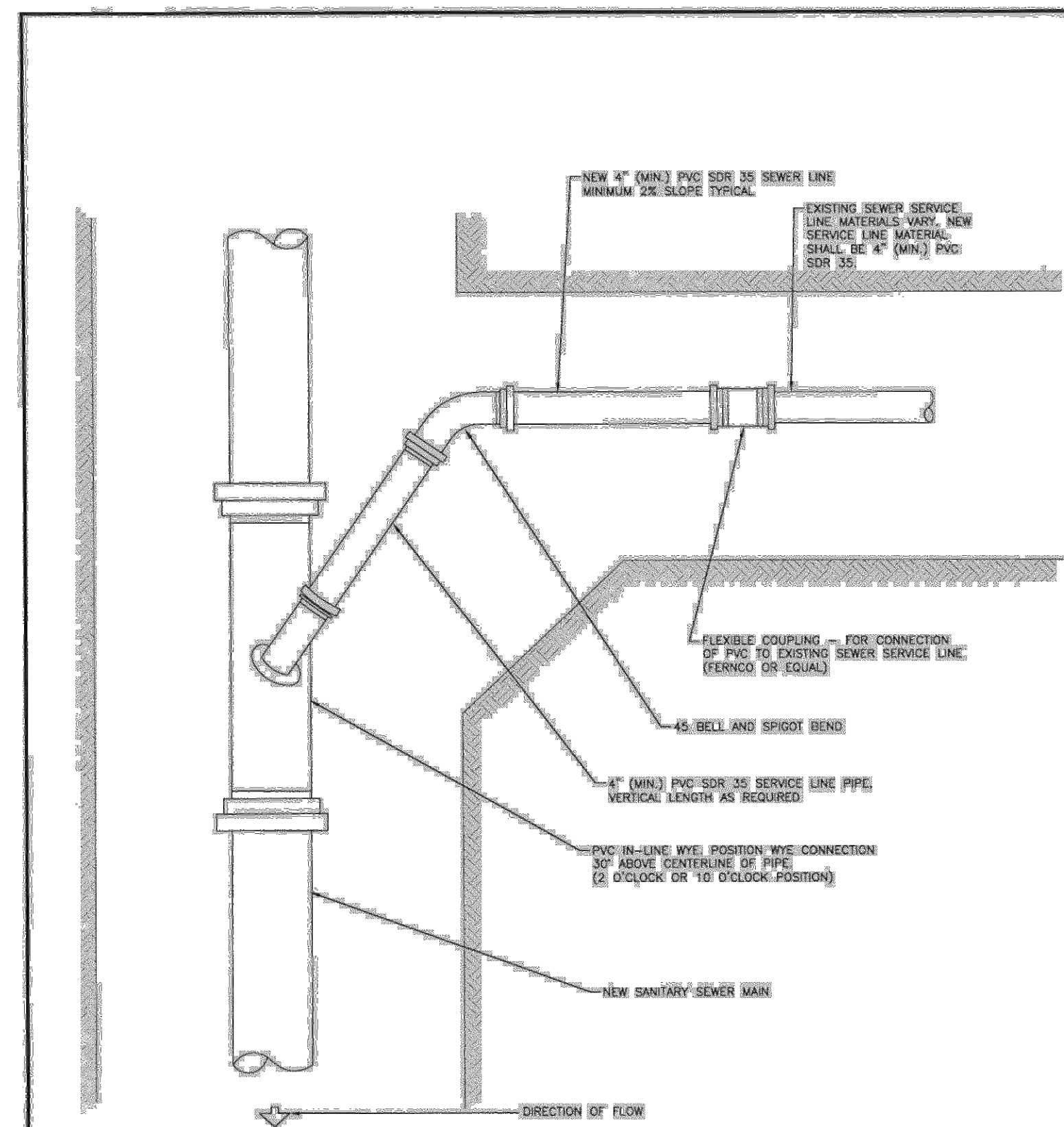
#	Date	Issue / Description	Init.
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Project No:	CUH-14-20
Drawn By:	JDP
Checked By:	RGD
Date:	7/29/2019

UTILITY DETAILS







**Galloway**

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CONSTRUCTION PLANS  
BENT GRASS RESIDENTIAL FILING NO. 2

BENT GRASS MEADOWS DRIVE  
FALCON, CO 80831 EL PASO COUNTY

[illegible]

Project No:	CLH-14.2C
Drawn By:	JDF
Checked By:	RGE
Date:	7/29/2019

## UTILITY DETAILS

C4.04

Sheet 31 of 31