

STERLING RANCH FILING 4

COUNTY OF EL PASO, STATE OF COLORADO

STORM SEWER PLANS

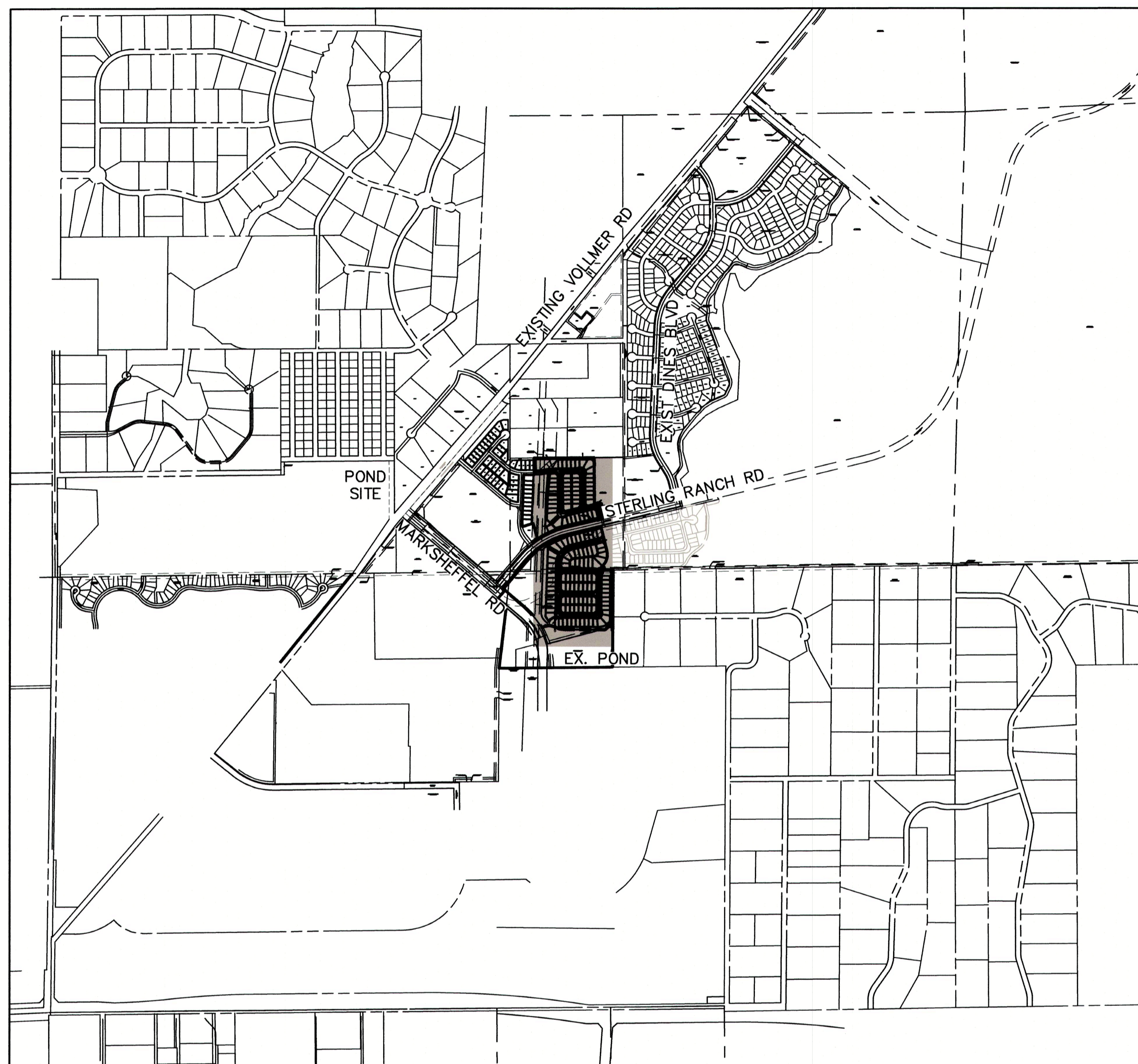
AUGUST 2023

AGENCIES

- OWNER/DEVELOPER:** SR LAND, LLC
20 BOULDER CRESCENT, SUITE 201
COLORADO SPRINGS, CO 80903
JAMES F. MORLEY (719) 471-1742
- CIVIL ENGINEER:** JR ENGINEERING, LLC
5475 TECH CENTER DRIVE
COLORADO SPRINGS, CO 80919
MIKE BRAMLETT P.E. (303) 267-6240
- COUNTY ENGINEERING:** EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT
2880 INTERNATIONAL CIRCLE, SUITE 110
COLORADO SPRINGS, CO 80910
JEFF RICE, P.E. (719) 520-6300
- TRAFFIC ENGINEERING:** EL PASO COUNTY DEPARTMENT OF PUBLIC WORKS
3275 AKERS DRIVE
COLORADO SPRINGS, CO 80922
JOSHUA PALMER, P.E. (719) 520-6460
- WATER RESOURCES:** STERLING RANCH METRO DISTRICT ENGINEERS
JDS-HYDRO CONSULTANTS
545 E. PIKES PEAK AVE., SUITE 300
COLORADO SPRINGS, CO 80903
JOHN MCGINN (719) 668-8769
- FIRE DISTRICT:** BLACK FOREST FIRE PROTECTION DISTRICT
11445 TEACHOUT ROAD
COLORADO SPRINGS, CO 80908
CHIEF BRYAN JACK (719) 495-4300
- GAS DEPARTMENT:** COLORADO SPRINGS UTILITIES
7710 DURANT DR.
COLORADO SPRINGS, CO 80947
TIM WENDT (719) 668-3556
- ELECTRIC DEPARTMENT:** MOUNTAIN VIEW ELECTRIC
11140 E. WOODMEN ROAD
FALCON, CO 80831
(719) 495-2283
- COMMUNICATIONS:** QWEST COMMUNICATIONS (U.N.C.C. LOCATORS) (800) 922-1987
AT&T (LOCATORS) (719) 635-3674
- STORMWATER:** STORMWATER ENTERPRISE
30 S. NEVADA AVENUE, SUITE 401
COLORADO SPRINGS, CO 80903
- COMMUNICATIONS:** QWEST COMMUNICATIONS (U.N.C.C. LOCATORS) (800) 922-1987
AT&T (LOCATORS) (719) 635-3674
- STORMWATER:** STORMWATER ENTERPRISE
30 S. NEVADA AVENUE, SUITE 401
COLORADO SPRINGS, CO 80903
(719) 385-5980
- TRAFFIC:** TRAFFIC AND TRANSPORTATION ENGINEERING
SR. ROW AGENT II
COLORADO INTERSTATE GAS CO. 80903
2 N. NEVADA AVE.
COLORADO SPRINGS, CO 80903
(719)-385-5908
- GAS:** STEPHEN BACON
SR. ROW AGENT II
COLORADO INTERSTATE GAS CO. (KINDER MORGAN)
2 N. NEVADA AVE.
COLORADO SPRINGS, CO 80903
719-659-5936
- GAS:** CRAG KEIRSEY
REAL ESTATE | MACELLAN MIDSTREAM PARTNERS, L.P.
ONE WILLIAMS CENTER, OTC-8, TULSA, OK 74172
918-574-7986

BENCHMARKS

- THE TOP OF AN ALUMINUM SURVEYORS CAP, STAMPED "9853", AT THE SOUTHEAST BOUNDARY CORNER OF BARBARICK SUBDIVISION
NORTHING = 411416.273
EASTING = 235167.071
ELEVATION = 7023.42
- THE TOP OF A RED PLASTIC SURVEYORS CAP, ILLEGIBLE, AT THE NORTHWEST BOUNDARY CORNER OF PAWNEE RANCHEROS SUBDIVISION
NORTHING = 410095.404
EASTING = 235052.131
ELEVATION = 7000.40
- THE TOP OF A RED PLASTIC SURVEYORS CAP, STAMPED "38141", AT THE SOUTHWEST BOUNDARY CORNER OF BARBARICK SUBDIVISION
NORTHING = 411399.962
EASTING = 233849.817
ELEVATION = 7030.82



VICINITY MAP
SCALE : 1"=1,000'

SHEET INDEX

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CITY OF COLORADO SPRINGS STATEMENT

REVIEWED AND ARE APPROVED FOR STORM DRAIN FACILITIES INSTALLATION CONSTRUCTION.

DATE

THE STORM FACILITIES CROSSING LANDS WITHIN THE CITY OF COLORADO SPRINGS JURISDICTION HAVE BEEN REVIEWED. PLAN REVIEW BY CITY OF COLORADO SPRINGS IS PROVIDED ONLY FOR GENERAL CONFORMANCE WITH DESIGN CRITERIA. THE CITY OF COLORADO SPRINGS IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, DIMENSIONS, AND/OR ELEVATIONS WHICH SHALL BE CONFIRMED AT THE JOB SITE. THE CITY OF COLORADO SPRINGS, THROUGH THE APPROVAL OF THIS DOCUMENT, ASSUMES NO RESPONSIBILITY FOR THE COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT.

UNTIL SUCH TIME AS THESE DRAWINGS ARE IN APPROPRIATE AGENCIES, JR ENGINEERING APPROVES THEIR USE ONLY FOR THE PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR
SR LAND, LLC
20 BOULDER CRESCENT
SUITE 201
COLORADO SPRINGS, CO 80903
JAMES F. MORLEY
(719) 471-1742

OWNER/DEVELOPER STATEMENT

I, THE OWNER/DEVELOPER HAVE READ AND WILL COMPLY WITH ALL OF THE REQUIREMENTS SPECIFIED IN THESE DETAILED PLANS AND SPECIFICATIONS.

James F. Morley 8/14/23
DATE

SR LAND, LLC
20 BOULDER CRESCENT, SUITE 201
COLORADO SPRINGS, CO 80903

EL PASO COUNTY STATEMENT

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.



JOSHUA PALMER, P.E.
COUNTY ENGINEER/ECM ADMINISTRATOR

ENGINEER'S STATEMENT

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

Mike Bramlett 08/14/23
DATE

MIKE A. BRAMLETT, P.E.
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING

DISTRICT APPROVALS

THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED FOR STORM DRAIN AND ASSOCIATED UTILITY SERVICE CONSTRUCTION.

James F. Morley 8/14/23
DATE

FOR AND ON BEHALF OF THE STERLING RANCH METRO DISTRICT

| H-SCALE | V-SCALE | DATE | DESIGNED BY | DRAWN BY | CHECKED BY |
|----------|---------|----------|-------------|----------|------------|
| 1"=1000' | N/A | 08/14/23 | N/A | WKN | |

STERLING RANCH FILING 4

COVER SHEET

SHEET 1 OF 14

JOB NO. 25188.11



Know what's below.
Call before you dig.

STANDARD CONSTRUCTION NOTES:

- ALL DRAINAGE AND ROADWAY CONSTRUCTION SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL VOLUMES 1 AND 2, AND THE EL PASO COUNTY ENGINEERING CRITERIA MANUAL.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATION AND FIELD LOCATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, BEFORE BEGINNING CONSTRUCTION. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CALL 811 TO CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC).
- CONTRACTOR SHALL KEEP A COPY OF THESE APPROVED PLANS, THE GRADING AND EROSION CONTROL PLAN, THE STORMWATER MANAGEMENT PLAN (SWMP), THE SOILS AND GEOTECHNICAL REPORT AND THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS AT THE JOB SITE AT ALL TIME INCLUDING THE FOLLOWING:
 - EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM)
 - CITY OF COLORADO SPRINGS/EL PASO COUNTY ENGINEERING CRITERIA MANUAL VOLUMES 1 AND 2.
 - COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARDS SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION.
 - CDOT M&S STANDARDS.
- IT IS THE DESIGN ENGINEERS RESPONSIBILITY TO ACCURACY SHOW EXISTING CONDITION BOTH ONSITE AND OFFSITE ON THE CONSTRUCTION PLANS. ANY MODIFICATION NECESSARY DUE TO CONFLICT OMISSIONS OR CHANGED CONDITIONS WILL BE ENTIRELY THE DEVELOPERS RESPONSIBILITY TO RECTIFY.
- IT IS THE CONTRACTORS RESPONSIBILITY TO UNDERSTAND THE REQUIREMENTS OF ALL JURISDICTIONAL AGENCIES AND TO OBTAIN ALL REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO EL PASO COUNTY EROSION AND STORM WATER QUALITY CONTROL PERMIT (ESQCP), REGIONAL BUILDING FLOODPLAIN DEVELOPMENT PERMIT, US ARMY CORPS OF ENGINEER ISSUED 401 AND/OR 404 PERMITS AND COUNTY AND STATE FUGITIVE DUST PERMITS.
- ANY TEMPORARY SIGNAGE AND STRIPING SHALL COMPLY WITH EL PASO COUNTY PCD AND MUTCD CRITERIA.
- CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRED BY EL PASO COUNTY DOT INCLUDING WORK WITHIN THE RIGHT-OF-WAY AND SPECIAL TRANSPORT PERMITS.
- THE LIMITS OF CONSTRUCTION SHALL REMAIN WITHIN THE PROPERTY LINE UNLESS OTHERWISE NOTED. THE OWNER/DEVELOPER SHALL OBTAIN WRITTEN PERMISSION AND EASEMENTS, WHERE REQUIRED, FROM ADJOINING PROPERTY OWNER(S) PRIOR TO ANY OFFSITE DISTURBANCE GRADING, OR CONSTRUCTION.

SOIL RIPRAP NOTES:

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

STRUCTURAL CONCRETE NOTES:

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

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

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

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

STORM SEWER GENERAL NOTES

- ALL STATIONING IS ALONG STORM SEWER CENTERLINE UNLESS OTHERWISE INDICATED. ALL ELEVATIONS ARE INVERT UNLESS OTHERWISE INDICATED.
- ALL STORM SEWER BENDS AND WYES SHOWN ON THE PLAN SHALL BE PREFABRICATED.
- HORIZONTAL AND VERTICAL BENDS ARE INDICATED ON THE PLANS.
- JOINTS SHALL BE IN ACCORDANCE WITH ASTM C443 "STANDARD SPECIFICATIONS FOR JOINTS FOR CIRCULAR CONCRETE SEWER AND CULVERT PIPE USING RUBBER GASKET." JOINTS SHOULD BE WATERTIGHT AND HAVE A 100-YEAR SERVICE LIFE. IN NO CASE SHALL THE MAXIMUM JOINT OPENING FOR STRAIGHT ALIGNMENT EXCEED 1 INCH OR ONE AND ONE-HALF INCH ON CURVED ALIGNMENT.
- INLET DIMENSIONS SHOWN ON PLANS REFER TO DISTANCES FROM INSIDE FACES OF BOX BETWEEN THE WIDTHS AND LENGTHS.
- ALL INLETS REQUIRE A CURB TYPE AND FL TRANSITION (LOCAL DEPRESSION) DETAILED PER CDOT (M-604-12) TYPE R INLET DETAIL. SEE JR ROADWAY PLAN SHEETS AND DETAIL SHEET.
- ALL ON-GRADE INLETS ARE TO MATCH TBC ELEVATIONS AT EACH END FOLLOWING STREET GRADES. ALL SUMP INLETS ARE TO MATCH TBC ELEVATIONS AT THE CENTER OF THE STRUCTURE. SEE SEPARATE ROADWAY PLANS BY JR ENGINEERING FOR REQUIRED ELEVATIONS.
- WHERE PIPES ENTER STRUCTURES ON A SKEW, CONTRACTOR IS REQUIRED TO EXTEND PIPE TO ENSURE THAT BOTH EDGES OF THE PIPE EXTEND INTO THE STRUCTURE. CONTRACTOR WILL THEN BE REQUIRED TO CUT PIPE FLUSH WITH THE INSIDE FACE OF THE STRUCTURE AND GROUT IN PLACE. UNLESS OTHERWISE NOTED
- MANHOLE WIDTHS AND LENGTHS SHOWN ON PLAN REFER TO THE EXTERIOR WALL DIMENSIONS.
- ALL STORM SEWER SHALL BE A MINIMUM OF CLASS III REINFORCED CONCRETE PIPE. SPECIFIC SEGMENTS OF STORM SEWER SHALL BE REQUIRED TO BE CONSTRUCTED OF A MINIMUM OF 5000 PSI CONCRETE DUE TO EXCESSIVE VELOCITIES. REFER TO ADDITIONAL NOTES WITHIN CONSTRUCTION PLANS.
- SINCE ALL PIPE ENTRIES INTO THE BASE ARE VARIABLE, THE DIMENSIONS SHOWN ARE TYPICAL. ACTUAL DIMENSIONS AND QUANTITIES FOR CONCRETE AND REINFORCEMENT SHALL BE AS REQUIRED IN THE WORK.
- THE MH RING (FRAME) SHALL BE SET IN A BED OF GROUT. THE FRAME SHALL BE SURROUNDED WITH A GROUT IN UNPAVED AREA, OR A CONCRETE COLLAR IN PAVED AREA.
- PRECAST MANHOLES AND REINFORCEMENT SHALL CONFORM TO ASTM C 478 (AASHTO M 199).
- CAST IN PLACE MANHOLES SHALL BE CLASS B CONCRETE.
- STEPS SHALL BE REQUIRED WHEN THE MANHOLE DEPTH EXCEEDS 3'-6" AND SHALL BE IN ACCORDANCE WITH AASHTO M 199.
- ALL MATERIALS AND INSTALLATION PROCEDURES SHALL BE IN COMPLIANCE WITH MANUFACTURERS SPECIFICATIONS AND EL PASO COUNTY STANDARDS AND SPECIFICATION.
- ALL REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI. VERTICAL STEEL SHALL BE PLACED AT 1/4 OF WALL. ALL BARS SHALL HAVE A 2" MINIMUM CLEARANCE.
- FLOW CHANNELS AND INVERTS SHALL BE FORMED BY SHAPING WITH CLASS B CONCRETE OR APPROVED GROUT.
- STUB-OUTS SHALL EXTEND 4 FT MINIMUM BEYOND OUTSIDE WALL SURFACE OF MANHOLE AND BE SATISFACTORILY PLUGGED.
- CHECK WITH THE LOCAL GOVERNMENT AUTHORITY FOR ANY ADDITIONAL STORM SEWER SPECIFICATIONS, DETAILS, OR REGULATIONS.
- THE SLOPE OF THE MANHOLE COVER SHALL MATCH THE ROADWAY PROFILE AND CROSS SLOPE.
- ALL MANHOLE COVERS SHALL BE ORIENTED TO AVOID CURB, GUTTER, SIDEWALK AND CROSSPANS UNLESS OTHERWISE NOTED
- THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF ALL PREFABRICATED STRUCTURES TO THE ENGINEER FOR REVIEW PRIOR TO INSTALLATION.

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE DESIGNATED BY WRITTEN AUTHORIZATION.


PREPARED FOR
SR LAND, LLC
 20 BOULDER CRESCENT
 SUITE 201
 COLORADO SPRINGS, CO 80903
 JAMES F. MORLEY
 (719) 471-1742

J.R. ENGINEERING
 A Westman Company

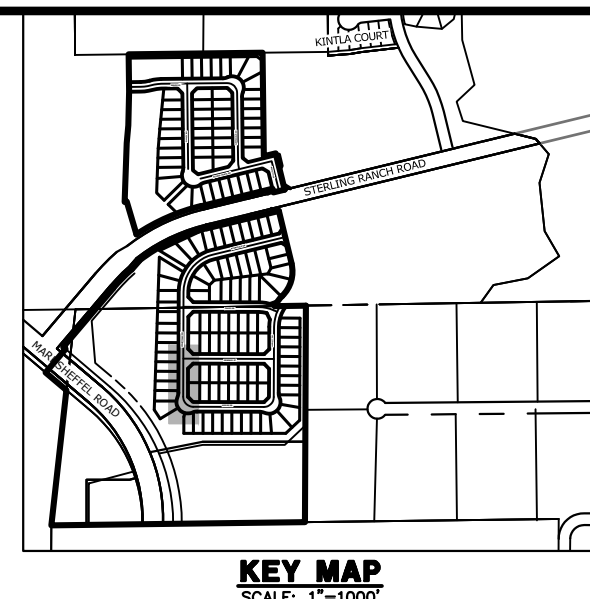
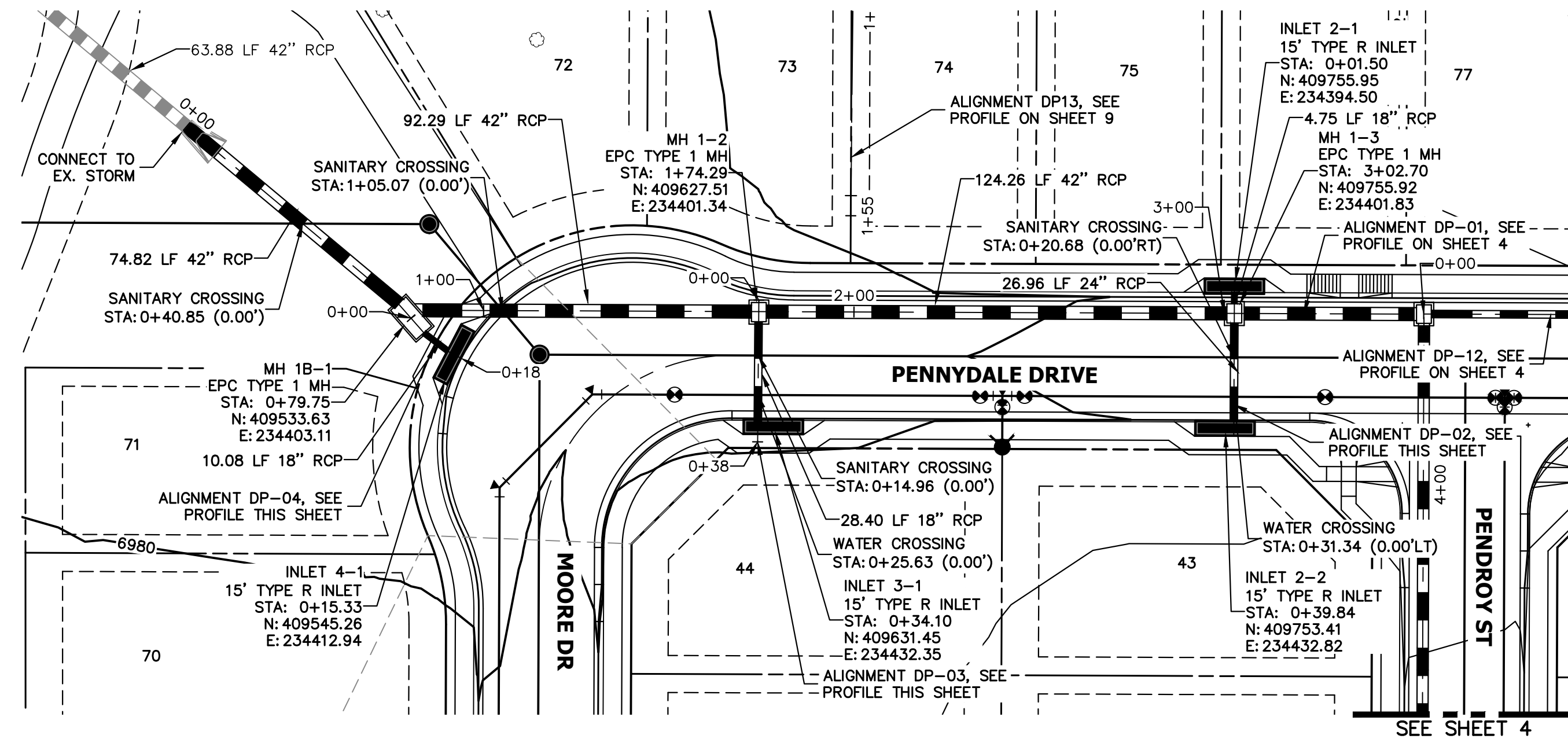
 Centennial 303-740-9888 • Colorado Springs 719-588-2583
 Fort Collins 970-491-9888 • www.jrengineering.com

| BY | DATE | No. | REVISION | H-SCALE | V-SCALE | DATE | DESIGNED BY | DRAWN BY | CHECKED BY |
|----|------|-----|----------|---------|---------|----------|-------------|----------|------------|
| | | | | N/A | N/A | 08/14/23 | N/A | WKN | |

STERLING RANCH FILING 4
 GENERAL NOTES
 SHEET 2 OF 14
 JOB NO. 25188.11

ENGINEER'S STATEMENT
 PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING

 MIKE A. BRAMLETT, P.E.
 COLORADO P.E. 32314
 FOR AND ON BEHALF OF JR ENGINEERING
 DATE 08/14/23

EPC 8/31/23
 FILE NO. SF-22-030

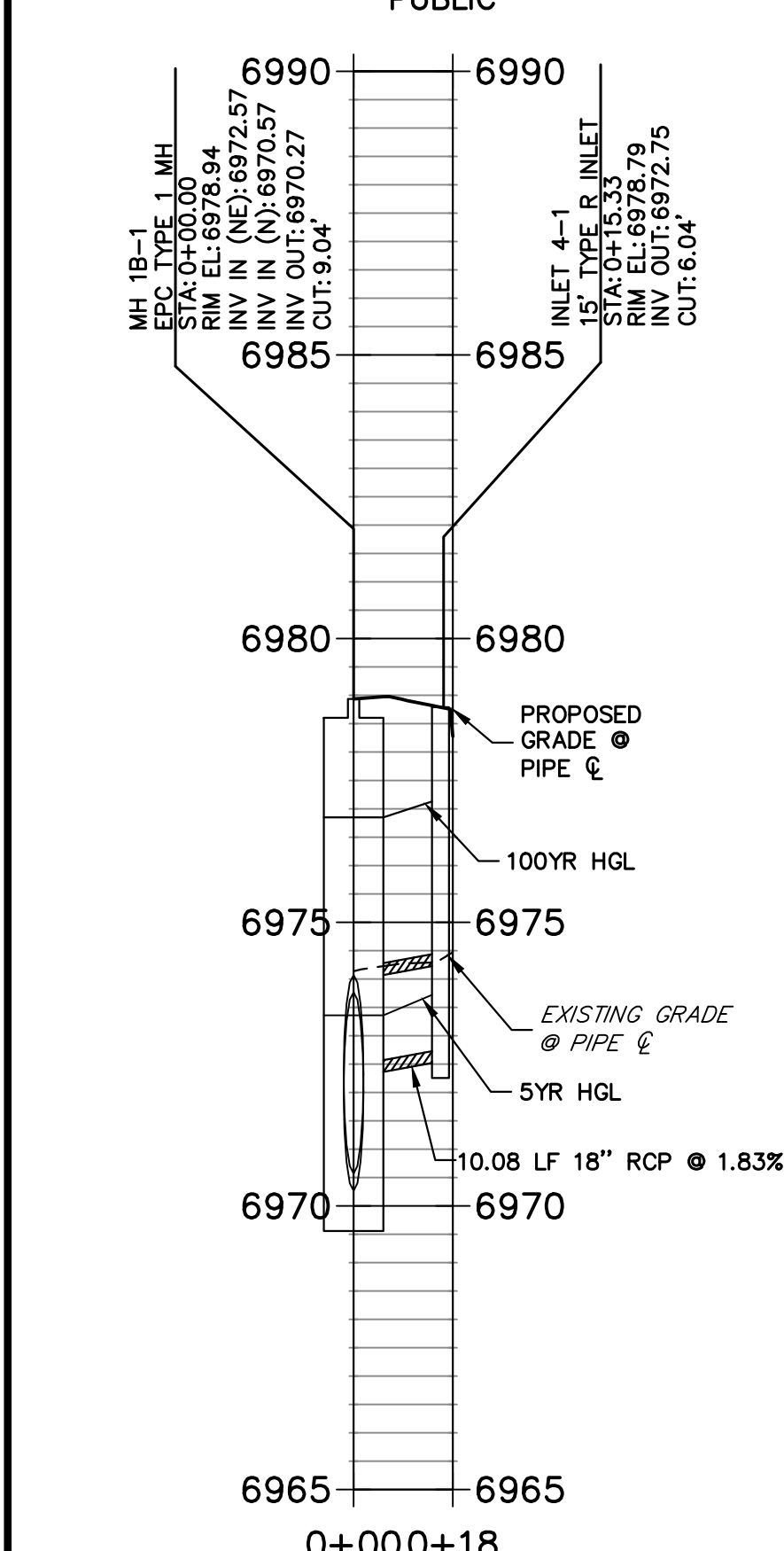


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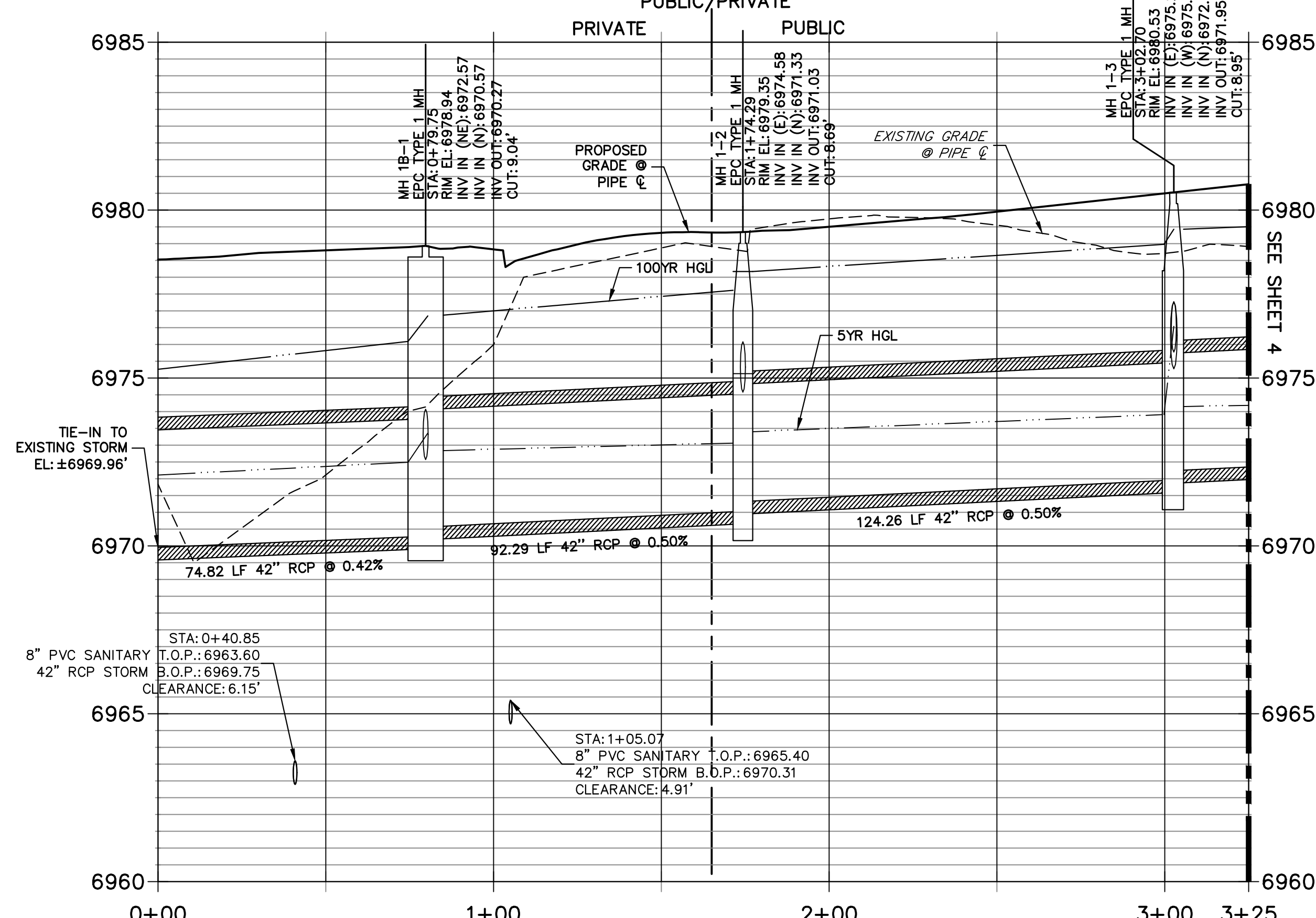
PREPARED FOR
SR LAND, LLC
 20 BOULDER CRESCENT
 SUITE 201
 COLORADO SPRINGS, CO 80903
 JAMES F. MORLEY
 (719) 471-1742

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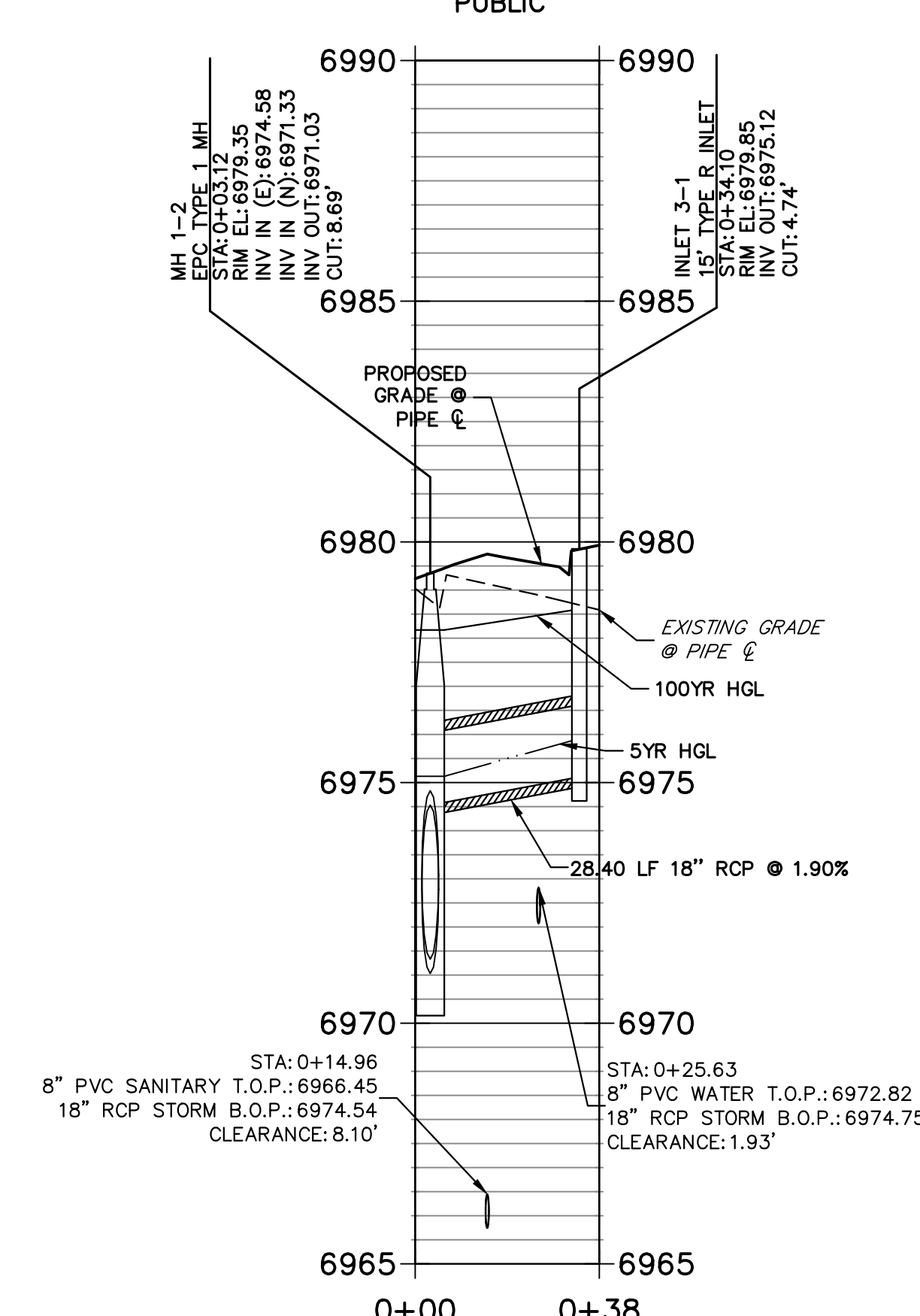
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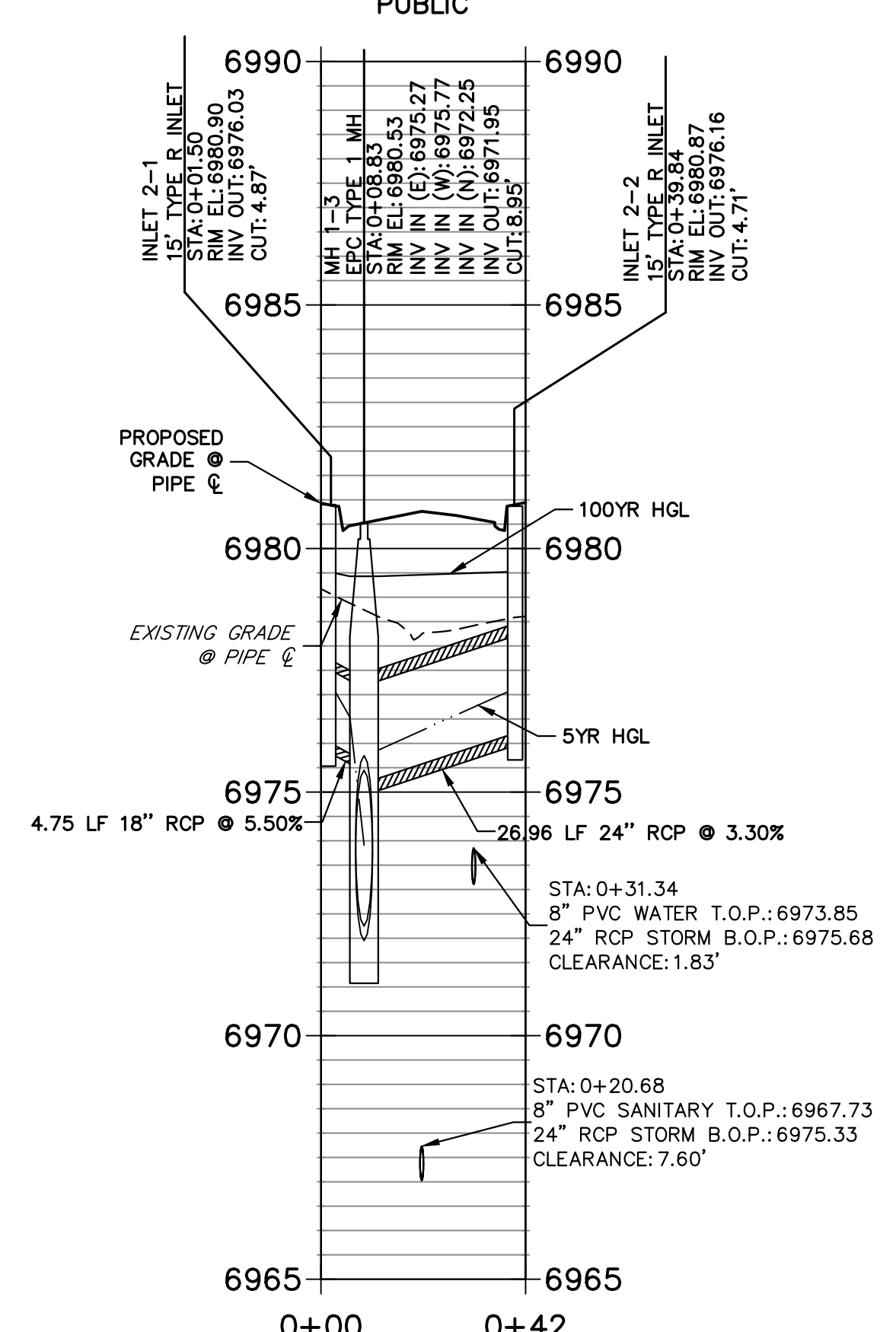
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 PUBLIC/PRIVATE



DP-03 PROFILE
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 PUBLIC

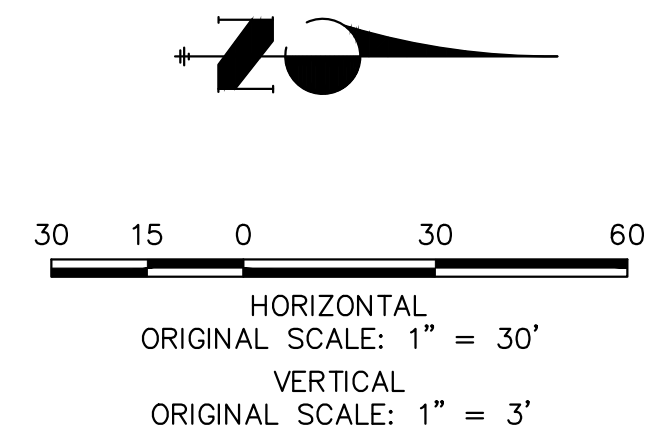


DP-02 PROFILE
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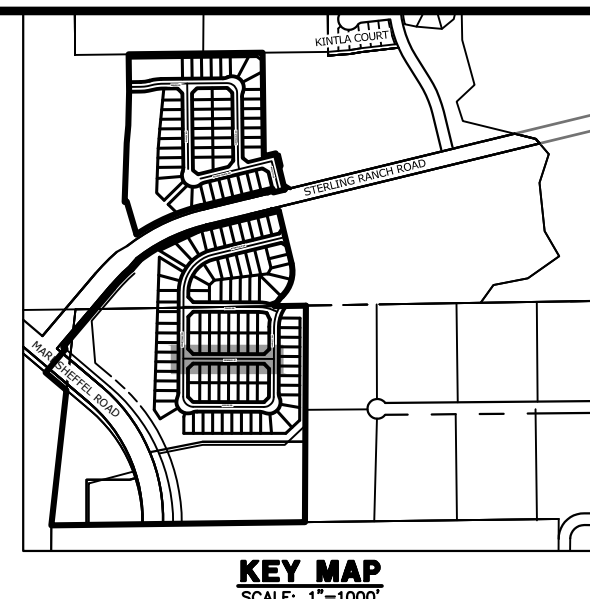
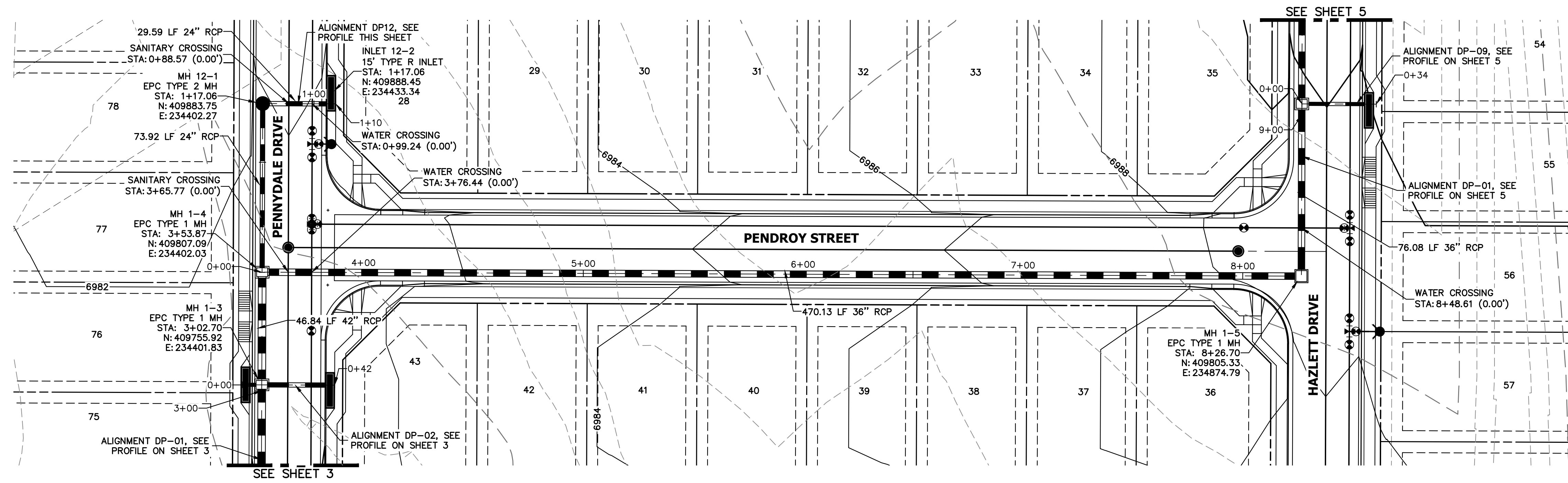
THE LOCATIONS OF EXISTING ABOVE GROUND AND UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL ABOVE GROUND AND UNDERGROUND UTILITIES.

NOTE:
 ADD WATER TIGHT JOINT WHEN 100 YR HGL SHOWS PIPE FULLY INUNDATED

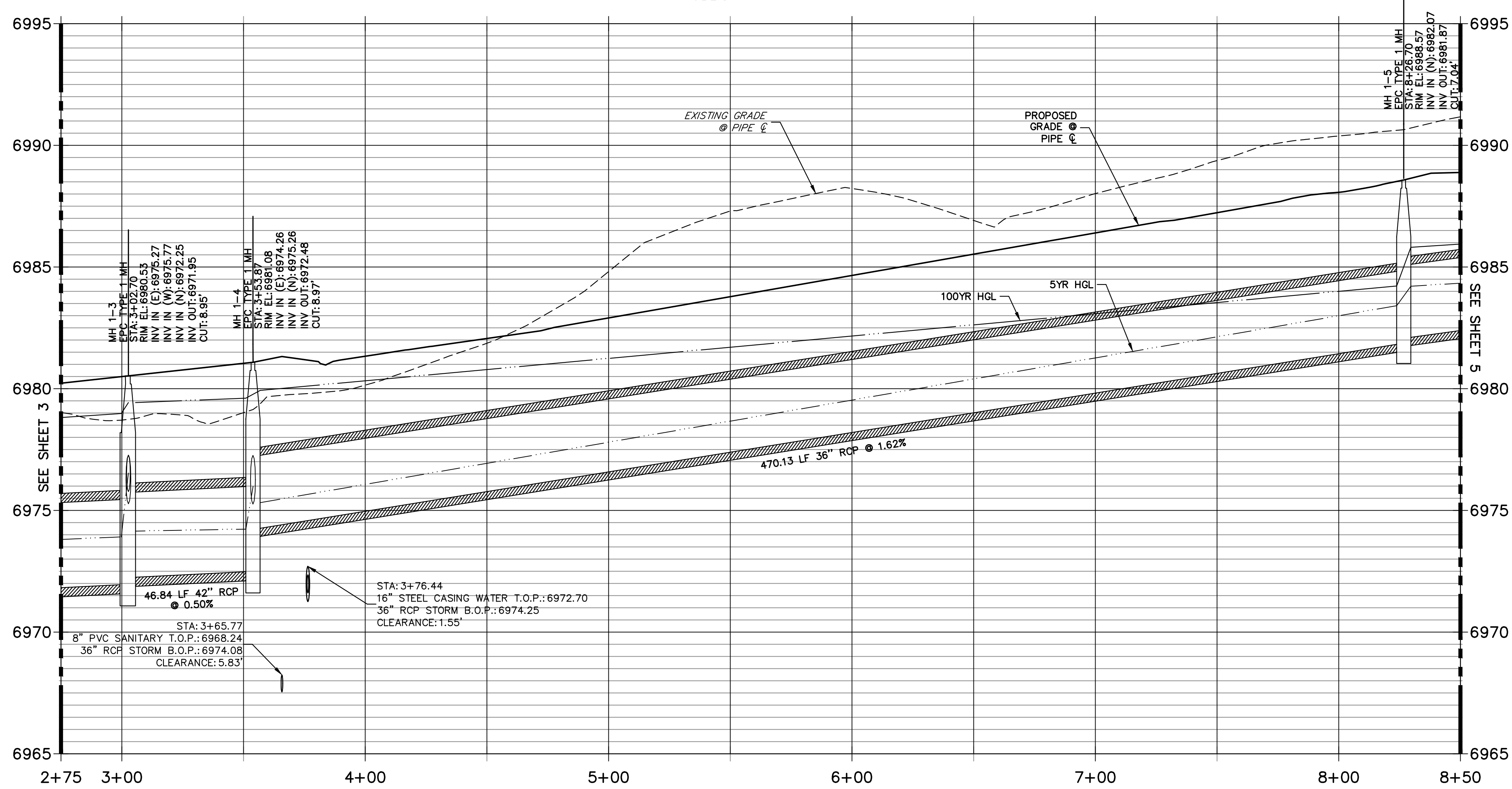


EPC 8/31/23
ENGINEER'S STATEMENT
 PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING
 Mike Bramlett
 32314
 08/14/23
 MIKE A. BRAMLETT, P.E.
 COLORADO P.E. 32314
 FOR AND ON BEHALF OF JR ENGINEERING, A LOCAL ENGINEERING FIRM

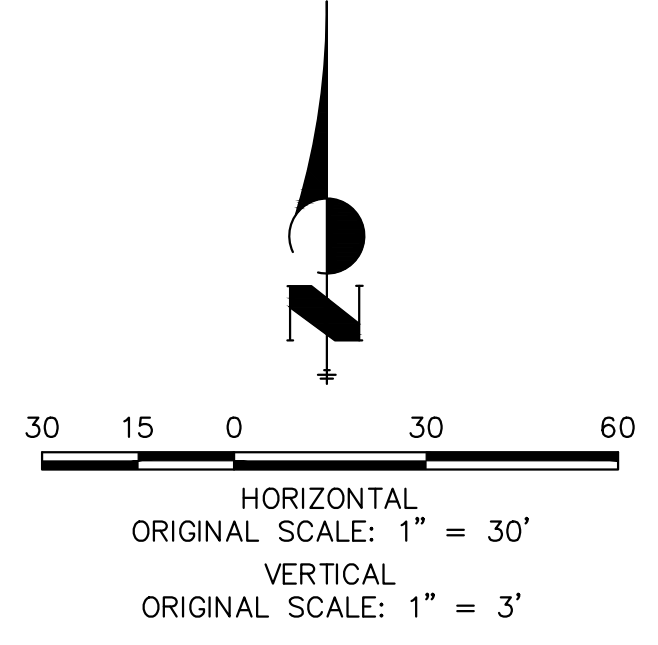
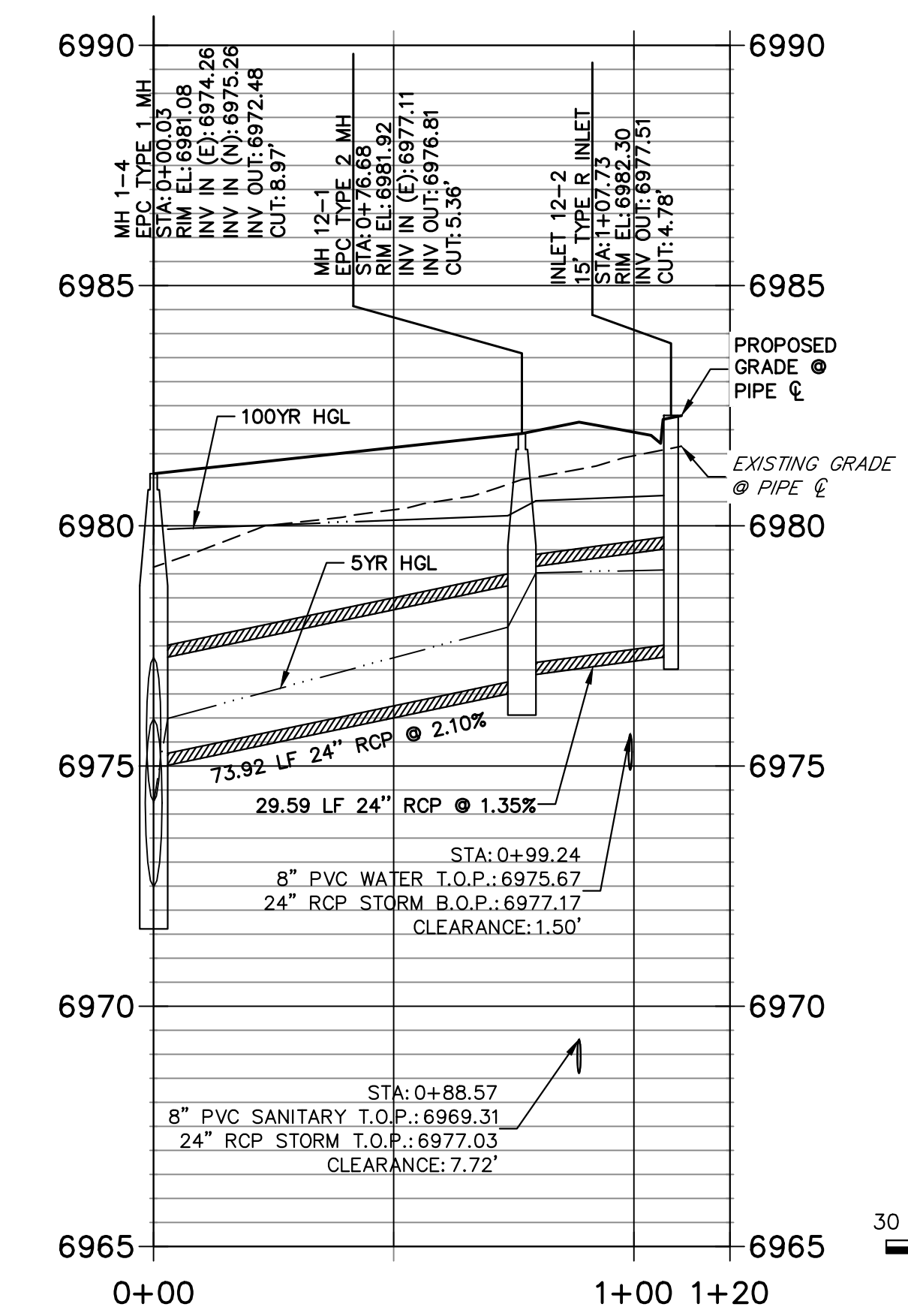
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| | | | | | | | | | |
| STERLING RANCH FILING 4 | | | | | | | | | |
| STORM SEWER PLAN | | | | | | | | | |
| SHEET 3 OF 14 | | | | | | | | | |
| JOB NO. 25188.11 | | | | | | | | | |



DP-01 PROFILE (1)
STA 2+75.00 TO 8+50.00
 PUBLIC



DP12 PROFILE
STA 0+00.00 TO 1+20.00
 PUBLIC



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NOTE:
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ENGINEER'S STATEMENT
 PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING
 Mike Bramlett
 32314
 08/14/23
 MIKE A. BRAMLETT, P.E.
 COLORADO P.E. 32314
 FOR AND ON BEHALF OF JR ENGINEERING, INC. LOCAL ENGINEER

STERLING RANCH FILING 4
 STORM SEWER PLAN
 SHEET 4 OF 14
 JOB NO. 25188.11

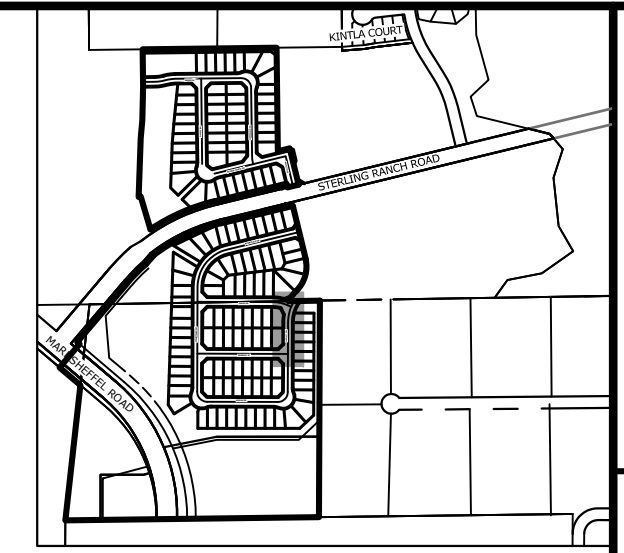
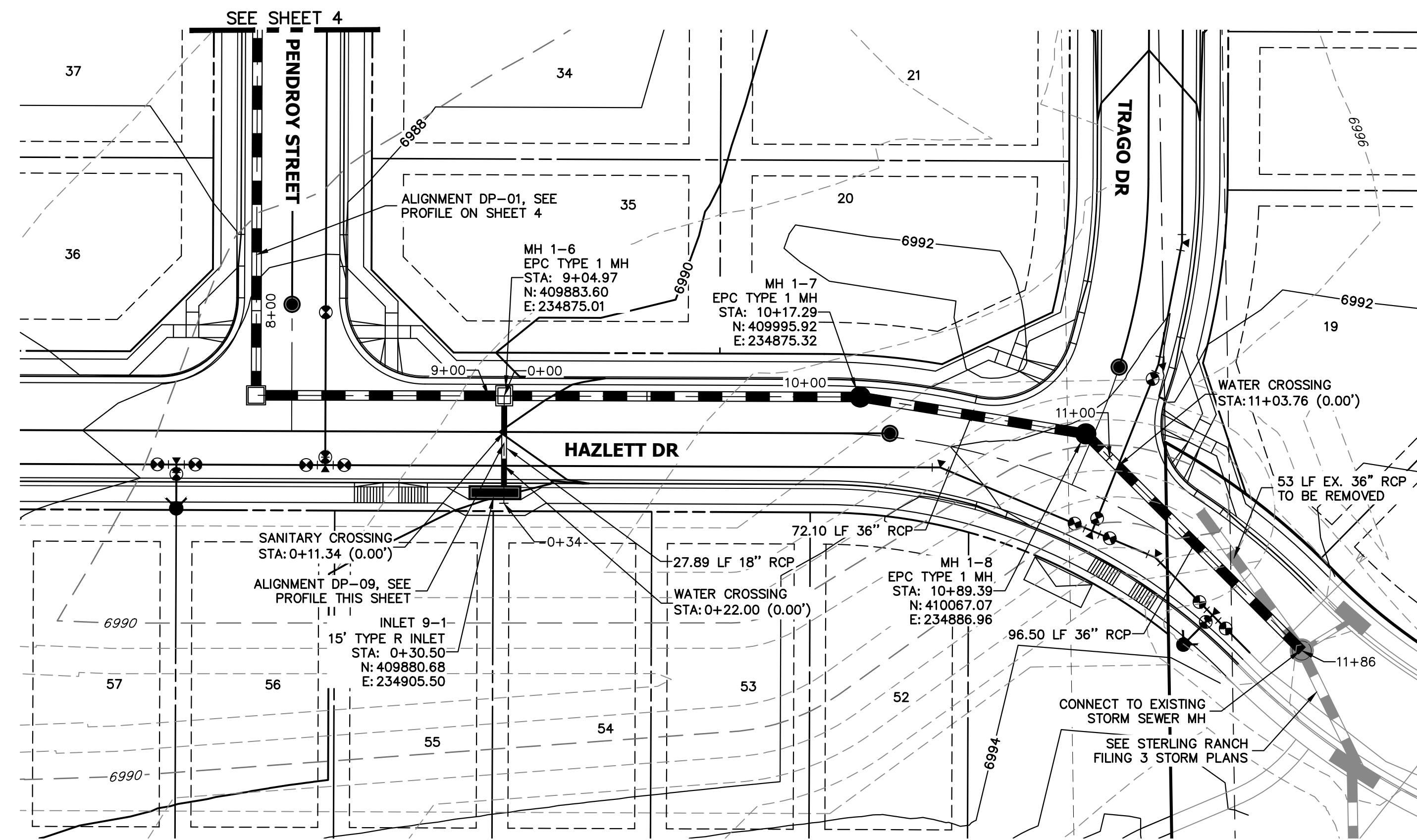
PREPARED FOR
 SR LAND, LLC
 20 BOULDER CRESCENT
 SUITE 201
 COLORADO SPRINGS, CO 80903
 JAMES F. MORLEY
 (719) 471-1742

J.R. ENGINEERING
 A Westman Company
 Centennial 303-740-9888 • Colorado Springs 719-583-2583
 Fort Collins 970-491-9888 • www.jrengineering.com

UNLESS SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE DESIGNATED BY WRITTEN AUTHORIZATION.

| NO. | REVISION | DATE |
|-----|----------|------|
| | | |
| | | |
| | | |

H-SCALE 1"=30'
 V-SCALE 1"=3'
 DATE 08/14/23
 DESIGNED BY RAB
 DRAWN BY WKN
 CHECKED BY

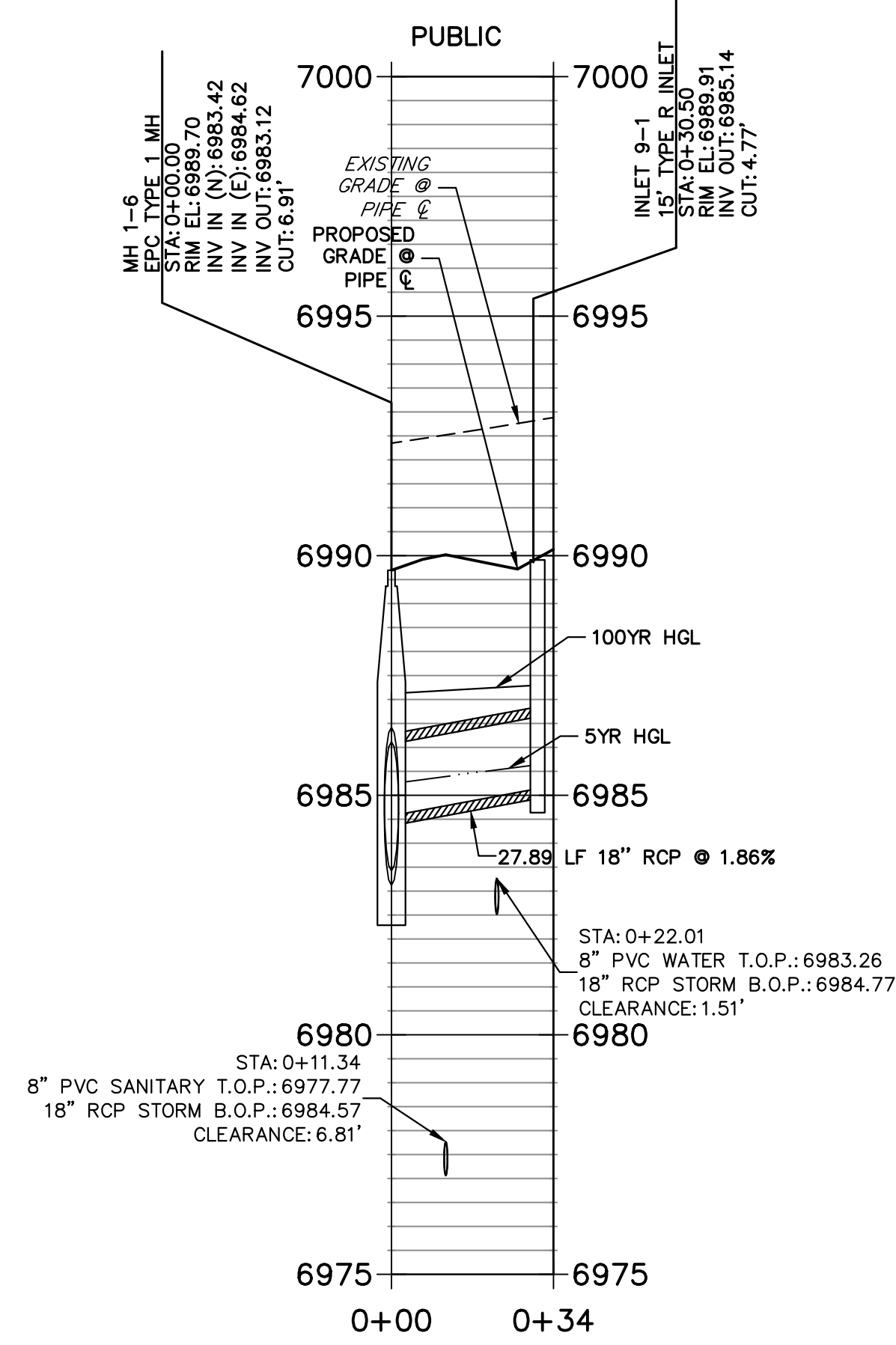


UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USES DESIGNATED BY WRITTEN AUTHORIZATION.

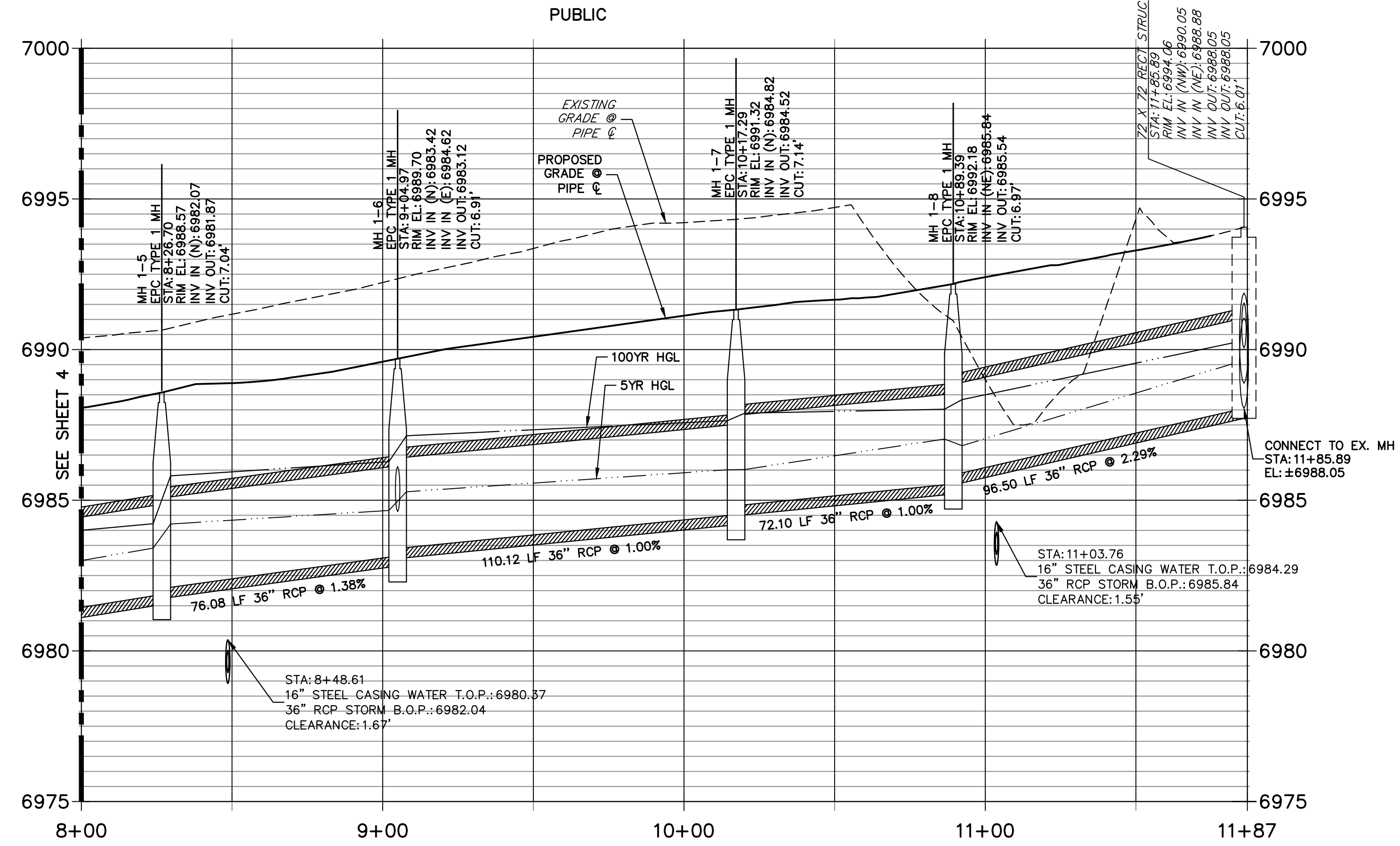
PREPARED FOR
SR LAND, LLC
 20 BOULDER CRESCENT
 SUITE 201
 COLORADO SPRINGS, CO 80903
 JAMES F. MORLEY
 (719) 471-1742

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 Centennial 303-740-9383 • Colorado Springs 719-583-2583
 Fort Collins 970-491-9888 • www.jrengineering.com

DP-09 PROFILE
 STA 0+00.00 TO 0+33.83

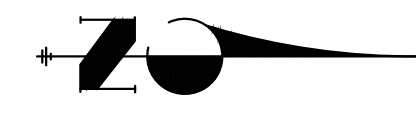
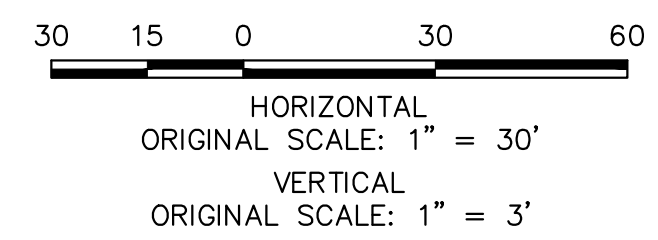


DP-01 PROFILE
 STA 8+00.00 TO 11+87.00



THE LOCATIONS OF EXISTING ABOVE GROUND AND UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL ABOVE GROUND AND UNDERGROUND UTILITIES.

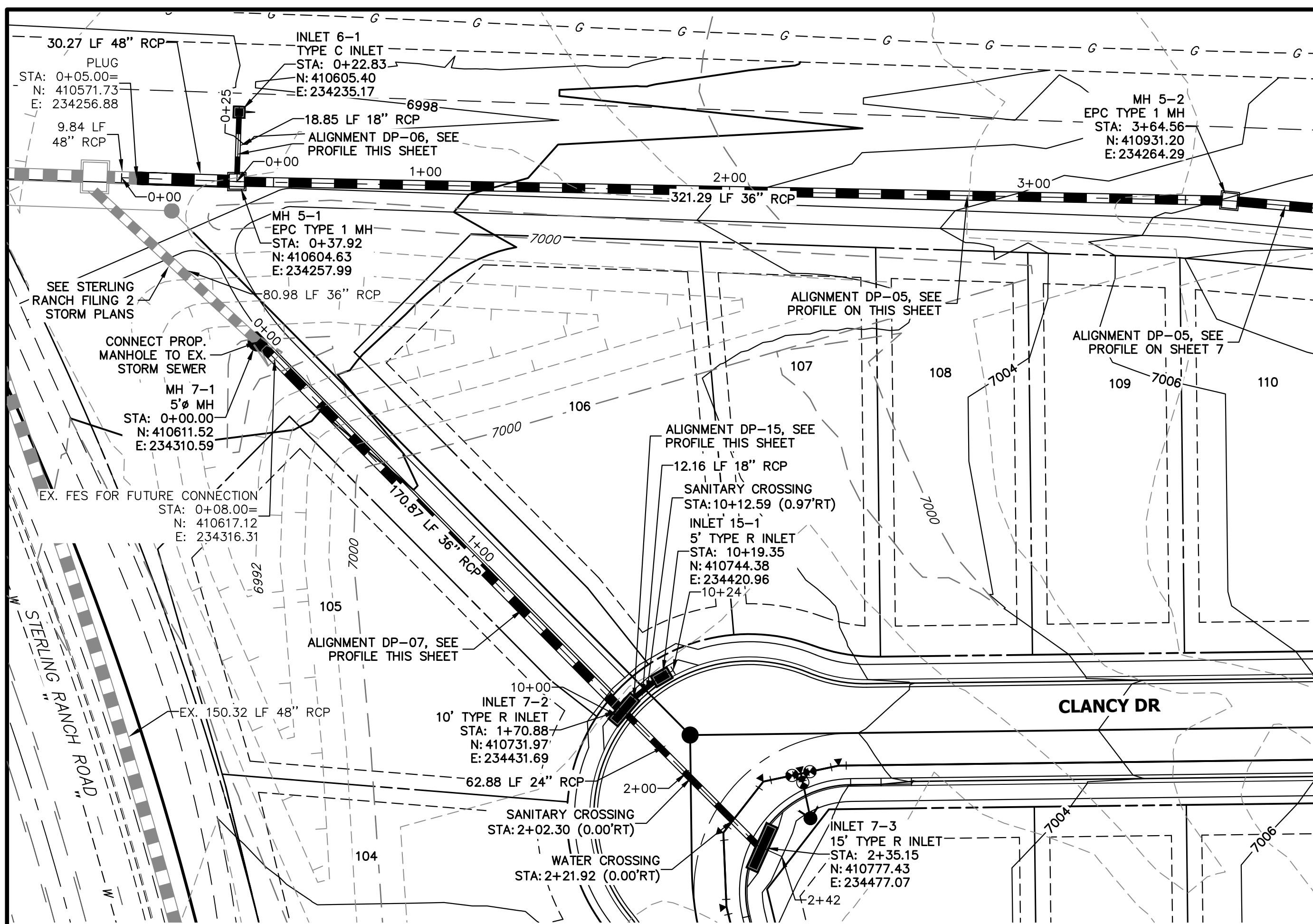
NOTE:
 ADD WATER TIGHT JOINT WHEN 100 YR HGL SHOWS PIPE FULLY INUNDATED



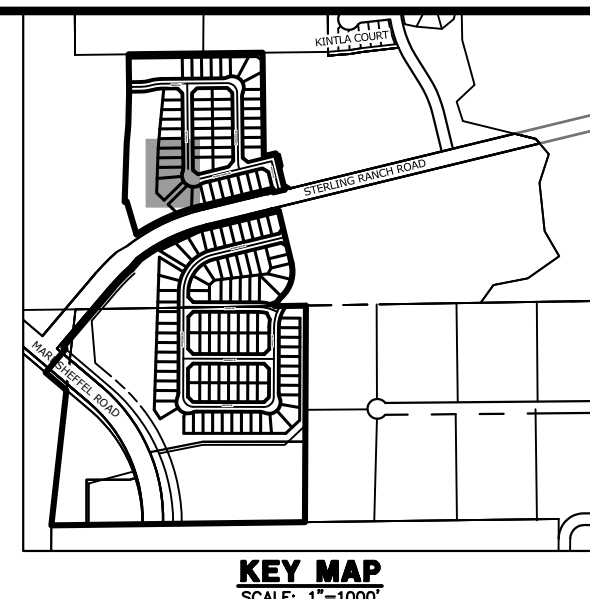
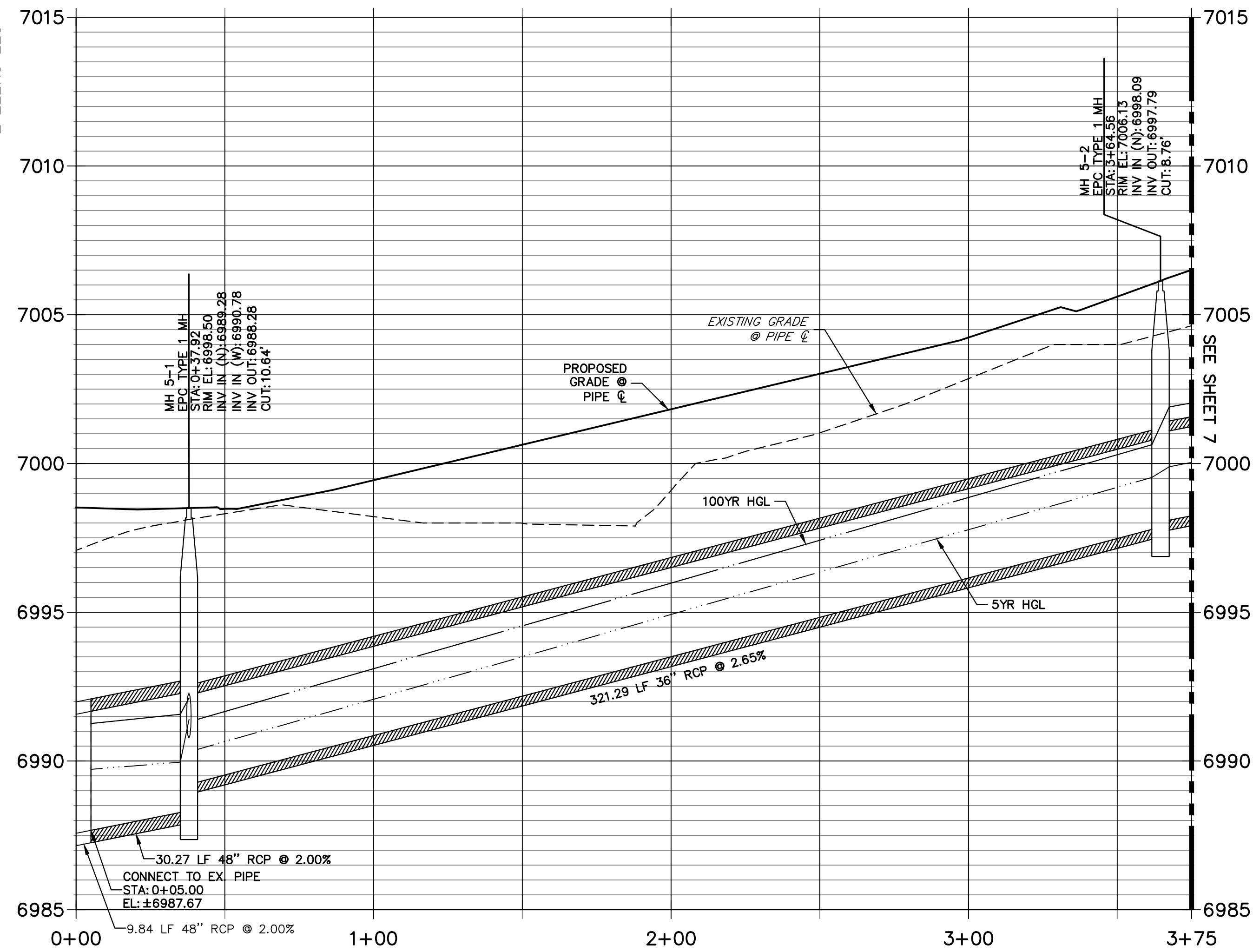
ENGINEER'S STATEMENT
 PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING
 Mike Bramlett
 Mike A. Bramlett, P.E.
 COLORADO P.E. 32314
 FOR AND ON BEHALF OF JR ENGINEERING
 DATE 08/14/23

| No. | REVISION | BY | DATE | H-SCALE | | V-SCALE | | DESIGNED BY | DRAWN BY | CHECKED BY |
|-------------------------|----------|----|------|---------|-------|---------|------|-------------|----------|------------|
| | | | | 1"=30' | 1"=3' | DATE | DATE | | | |
| | | | | | | | | | | |
| STERLING RANCH FILING 4 | | | | | | | | | | |
| STORM SEWER PLAN | | | | | | | | | | |
| SHEET 5 OF 14 | | | | | | | | | | |
| JOB NO. 25188.11 | | | | | | | | | | |

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DP-05 PROFILE
STA 0+00.00 TO 3+75.00
PRIVATE/SRMD

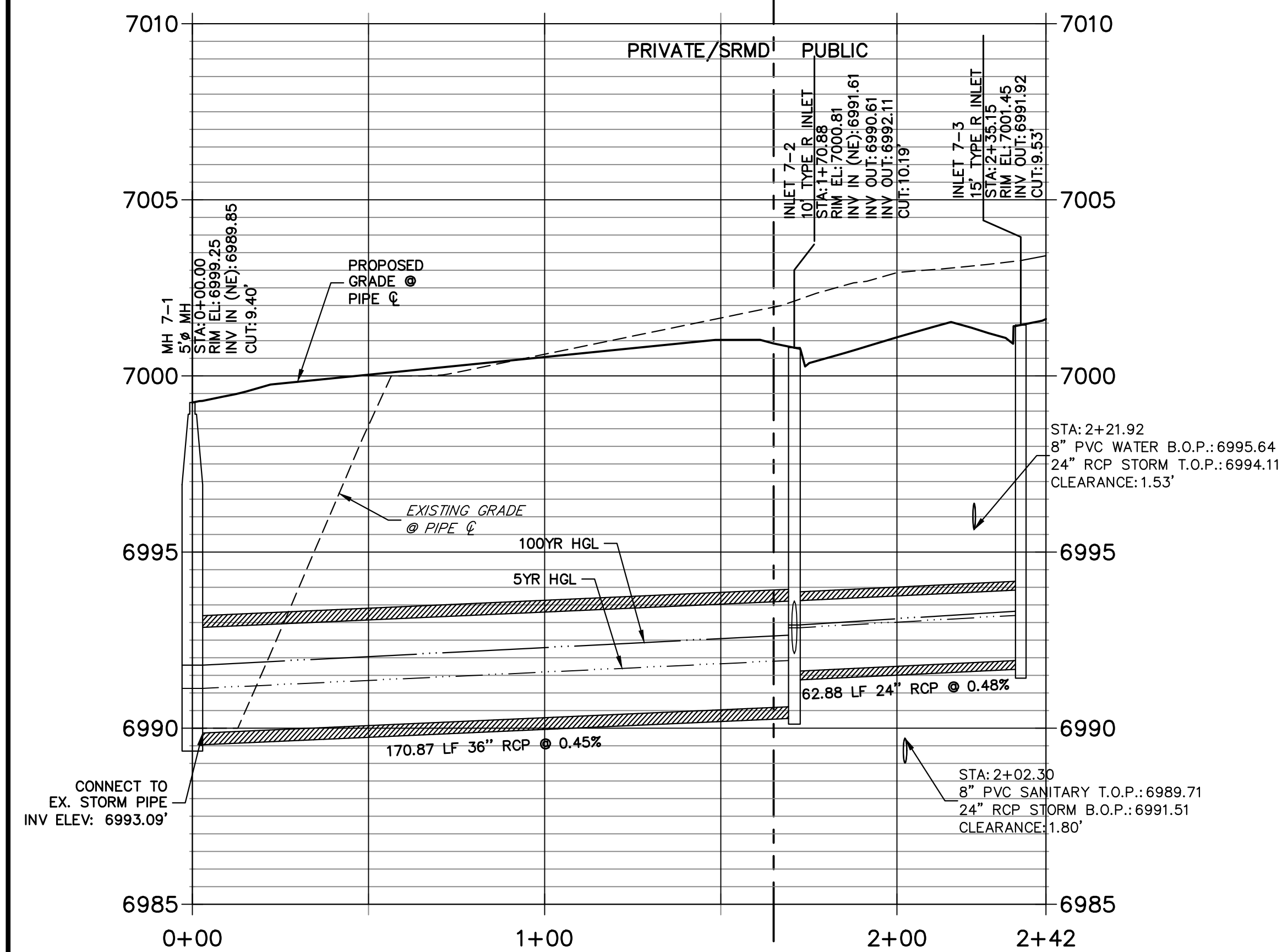


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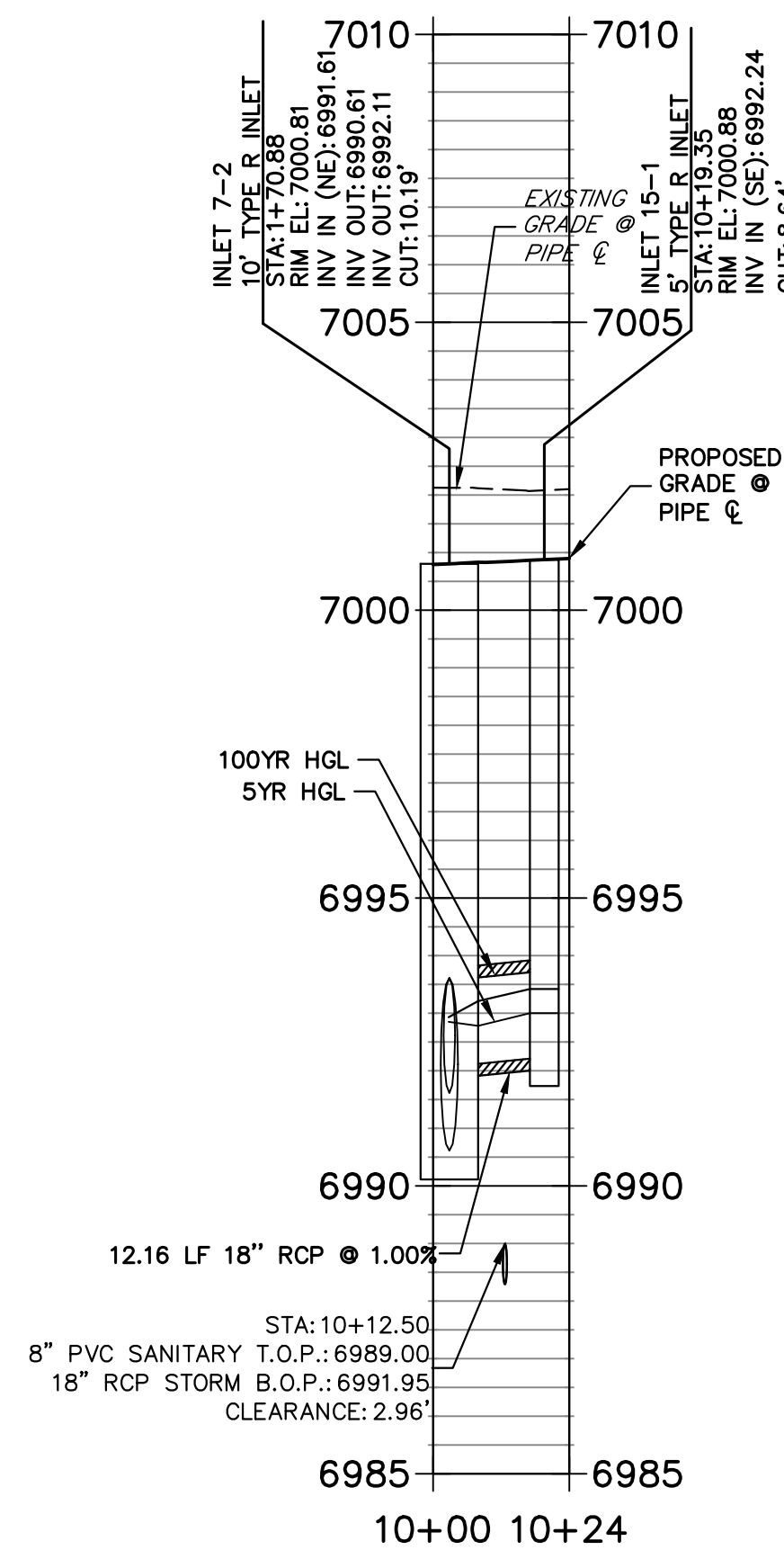
PREPARED FOR
SR LAND, LLC
20 BOULDER CRESCENT
SUITE 201
COLORADO SPRINGS, CO 80903
JAMES F. MORLEY
(719) 471-1742

J.R. ENGINEERING
A Westman Company
Central 303-740-9888 • Colorado Springs 719-583-2583
Fort Collins 970-491-9888 • www.jrengineering.com

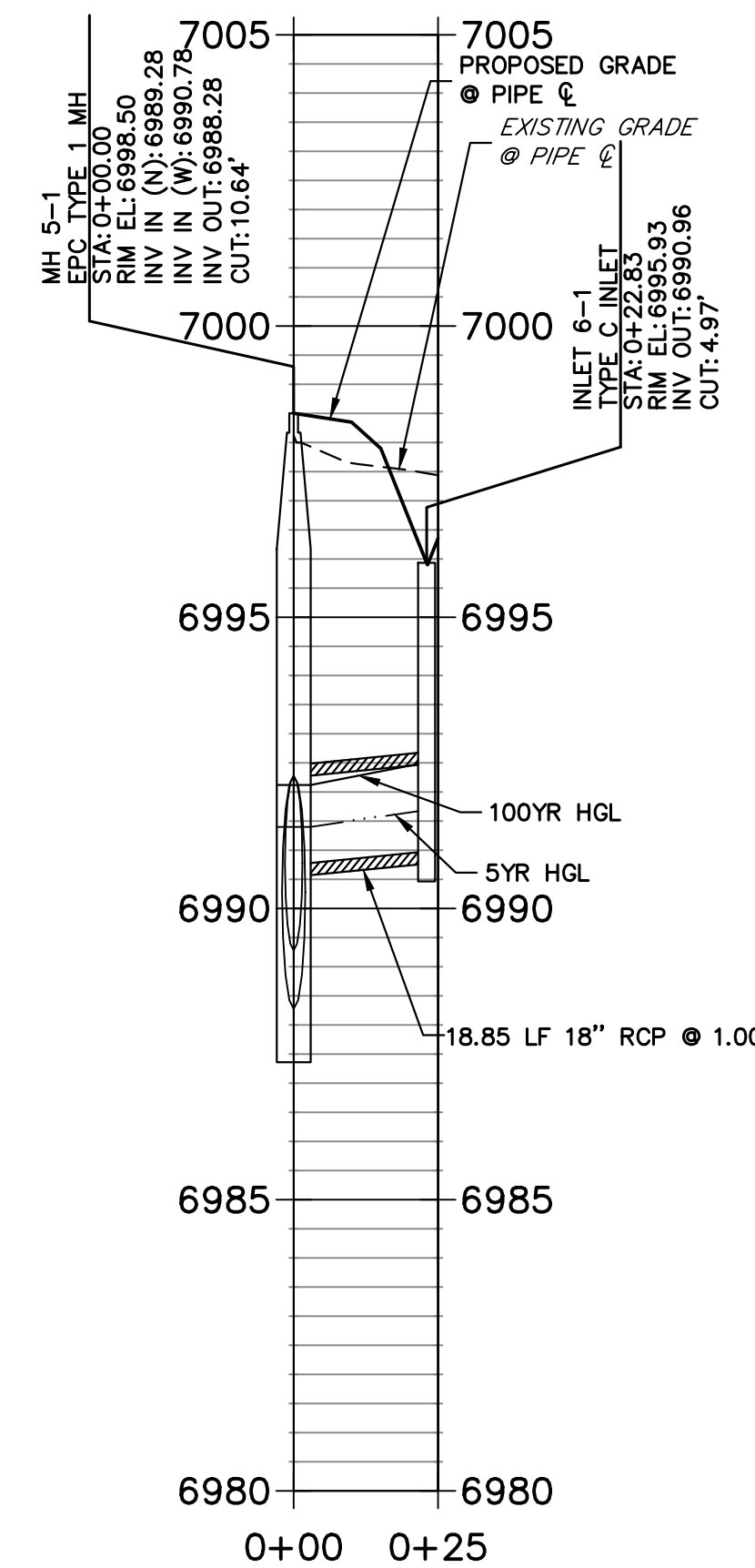
DP-07 PROFILE
STA 0+00.00 TO 2+42.31
PUBLIC/PRIVATE/SRMD



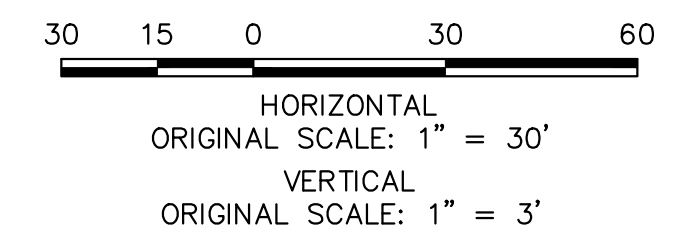
DP-15 PROFILE
STA 10+00.00 TO 10+23.68
PRIVATE/SRMD



DP-06 PROFILE
STA 0+00.00 TO 0+24.79
PRIVATE/SRMD



NOTE:
ADD WATER TIGHT JOINT WHEN 100 YR HGL SHOWS PIPE FULLY INUNDATED



EPC 8/31/23

ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING

Mike Bramlett
MIKE A. BRAMLETT, P.E.
32314
DATE 08/14/23

FOR AND ON BEHALF OF JR ENGINEERING, INC. A LOCAL ENGINEERING FIRM

THE LOCATIONS OF EXISTING ABOVE GROUND AND UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL ABOVE GROUND AND UNDERGROUND UTILITIES.

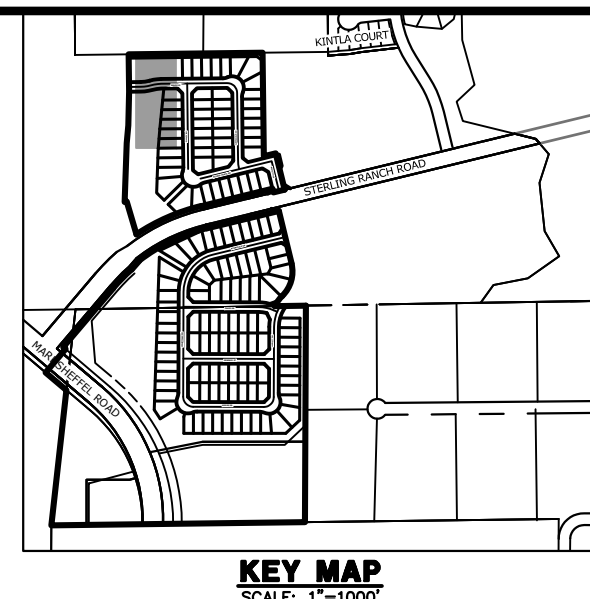
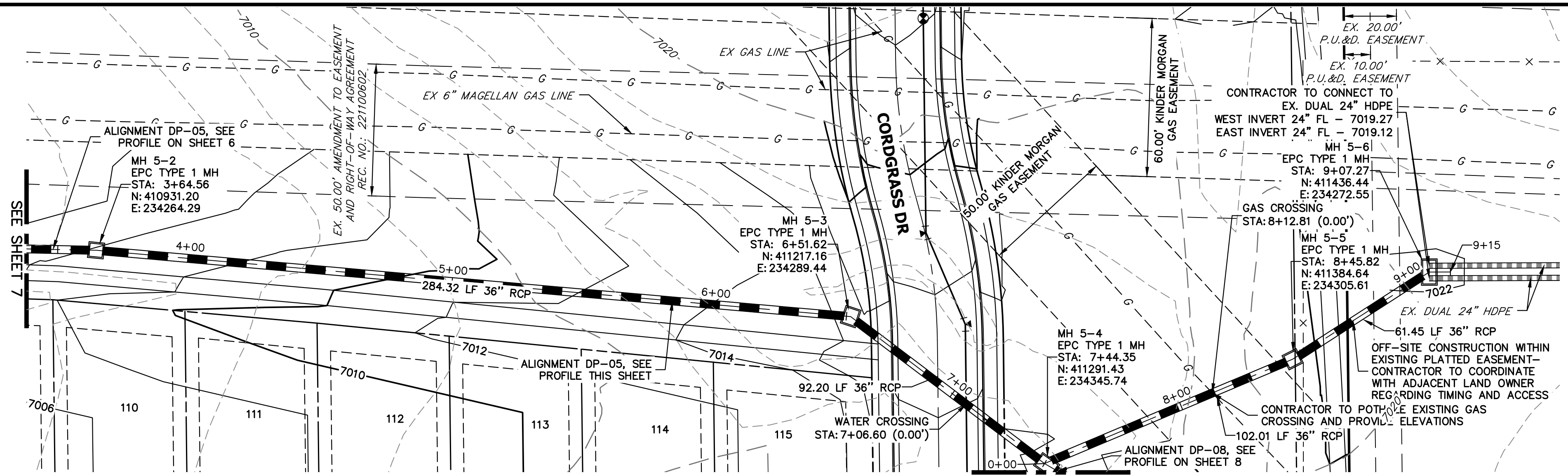


STERLING RANCH FILING 4

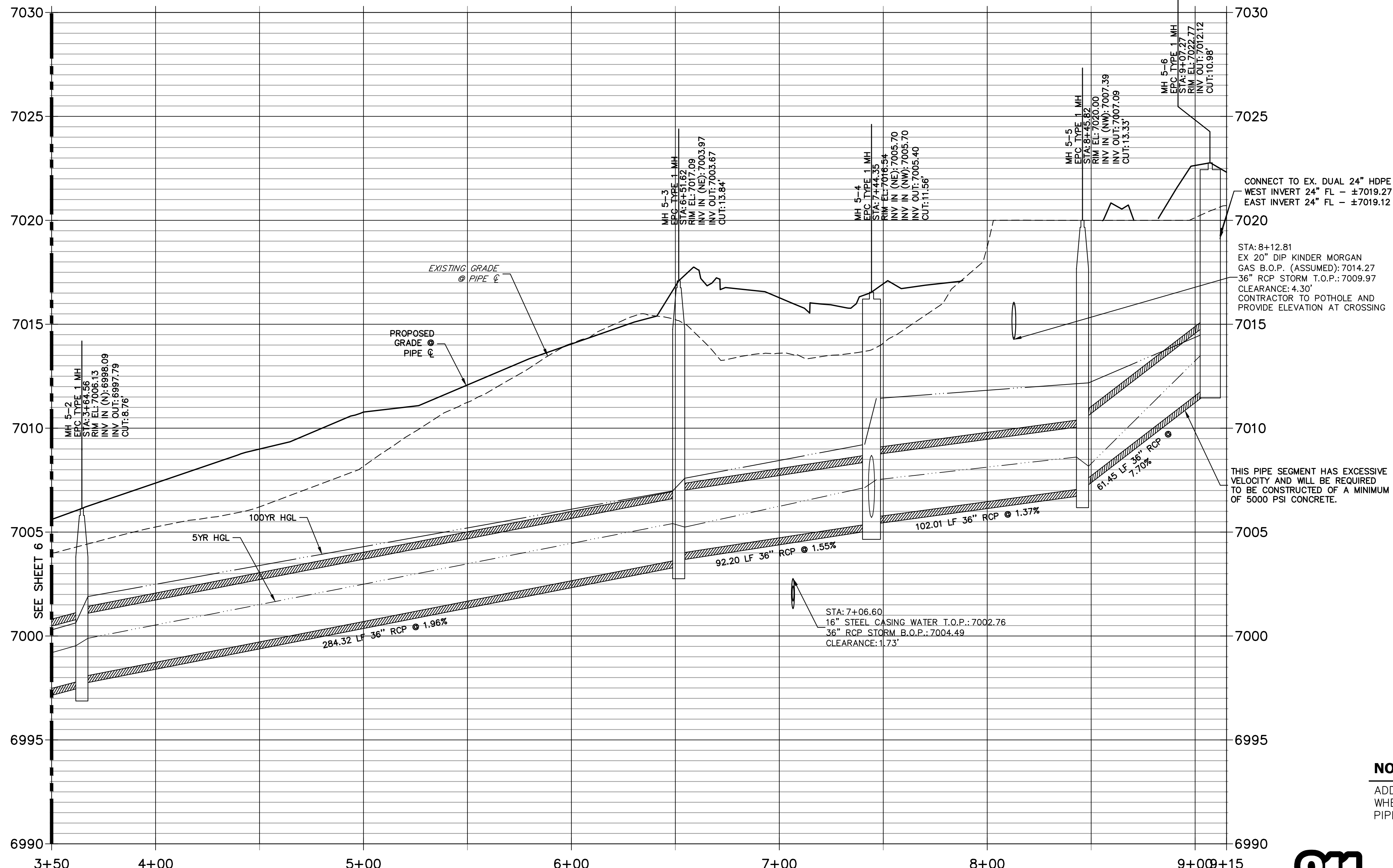
STORM SEWER PLAN

SHEET 6 OF 14

JOB NO. 25188.11

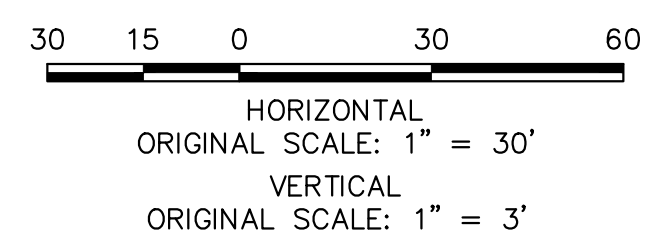


DP-05 PROFILE (3)
STA 3+50.00 TO 9+15.12
 PRIVATE/SRMD



WARNING
HIGH-PRESSURE PIPELINE(S)
 EXCAVATION AND/OR CONSTRUCTION PROHIBITED
 WITHOUT COMPLIANCE WITH STATE ONE-CALL, AND
 WITHOUT WRITTEN PERMISSION FROM
 MAGELLAN PIPELINE COMPANY, L.P.

NOTE:
 ADD WATER TIGHT JOINT
 WHEN 100 YR HGL SHOWS
 PIPE FULLY INUNDATED



ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING
 Mike A. Bramlett, P.E.
 COLORADO P.E. 32314
 FOR AND ON BEHALF OF JR ENGINEERING, INC. LOCAL ENGINEER
 DATE 08/14/23

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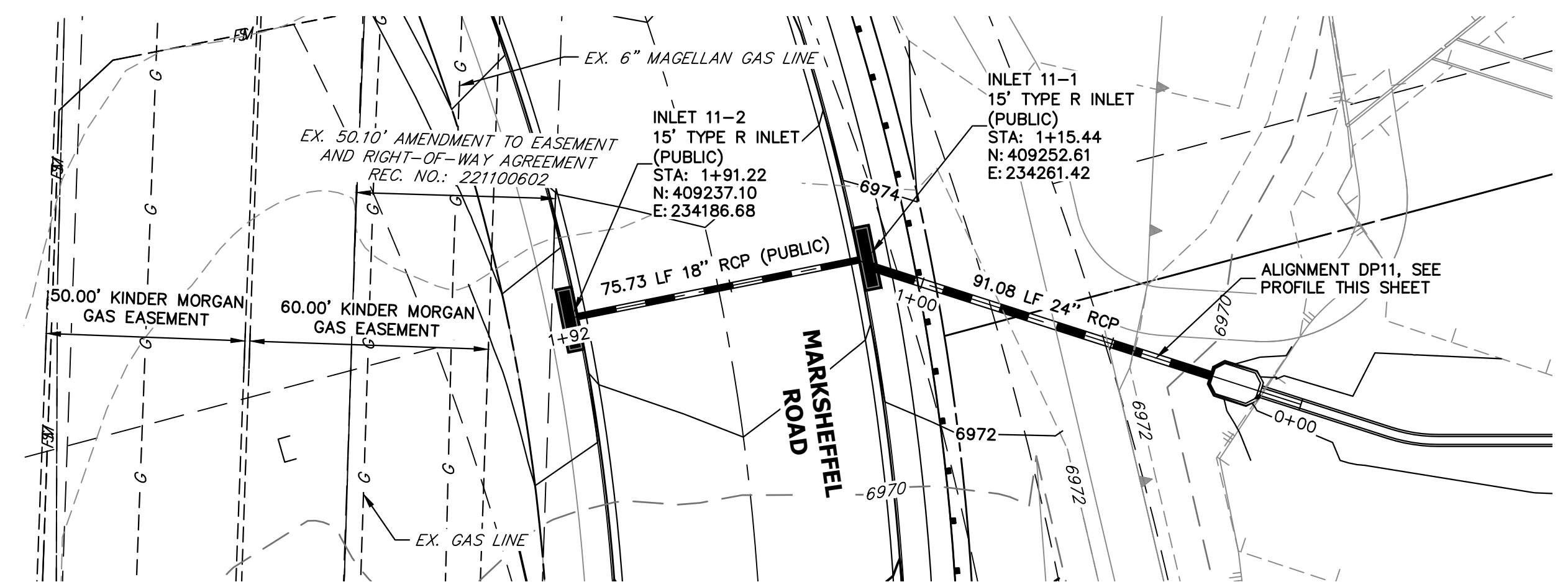
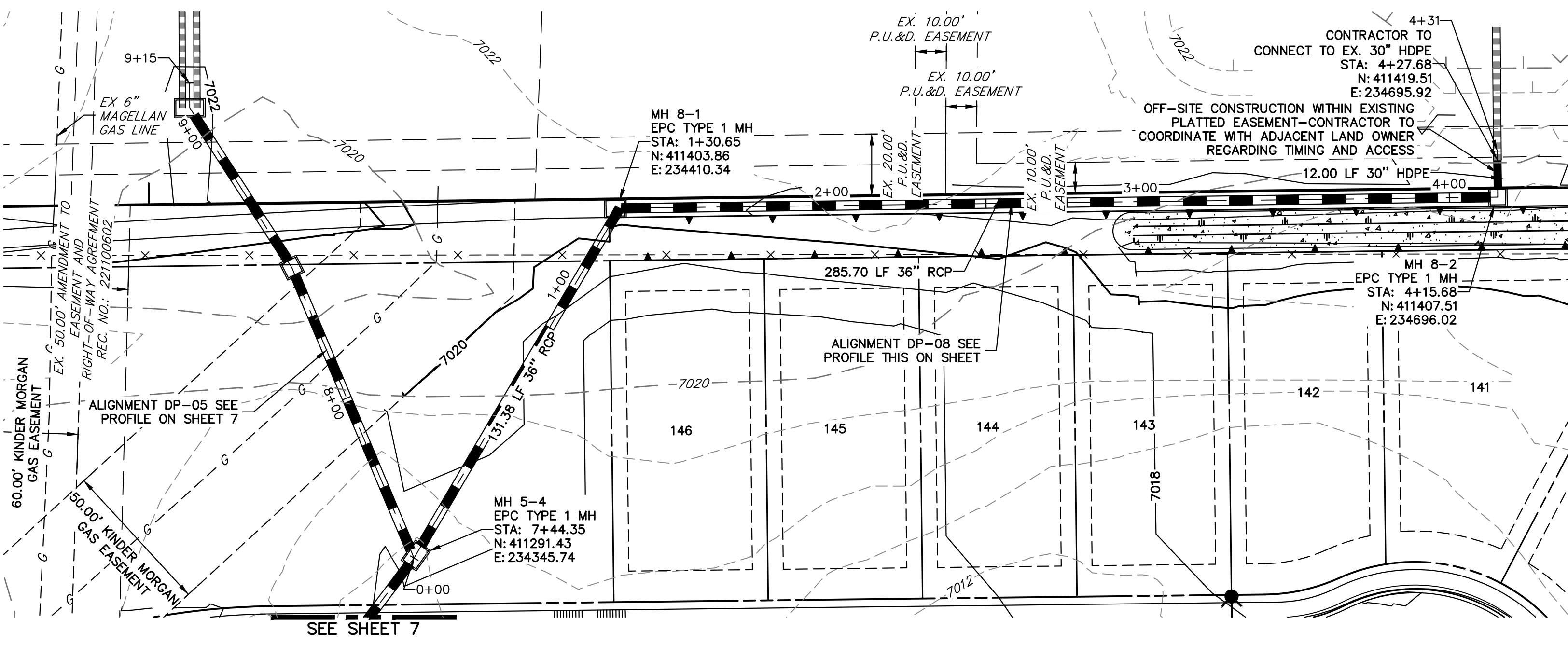
PREPARED FOR
SR LAND, LLC
 20 BOULDER CRESCENT
 SUITE 201
 COLORADO SPRINGS, CO 80903
 JAMES F. MORLEY
 (719) 471-1742

J.R. ENGINEERING
 A Westman Company
 Centennial 303-740-9888 • Colorado Springs 719-583-2583
 Fort Collins 970-491-9888 • www.jrengineering.com

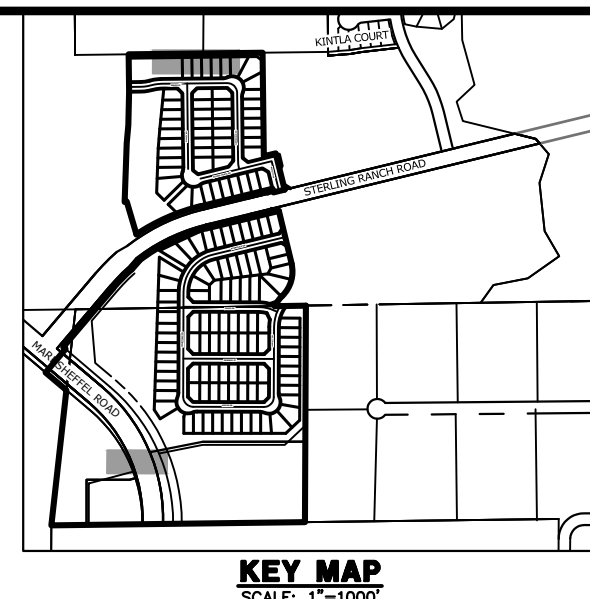
| No. | REVISION | BY | DATE |
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| H-SCALE | V-SCALE | DATE | DESIGNED BY | DRAWN BY | CHECKED BY |
|---------|---------|----------|-------------|----------|------------|
| 1"=30' | 1"=3' | 08/14/23 | RAB | WKN | |

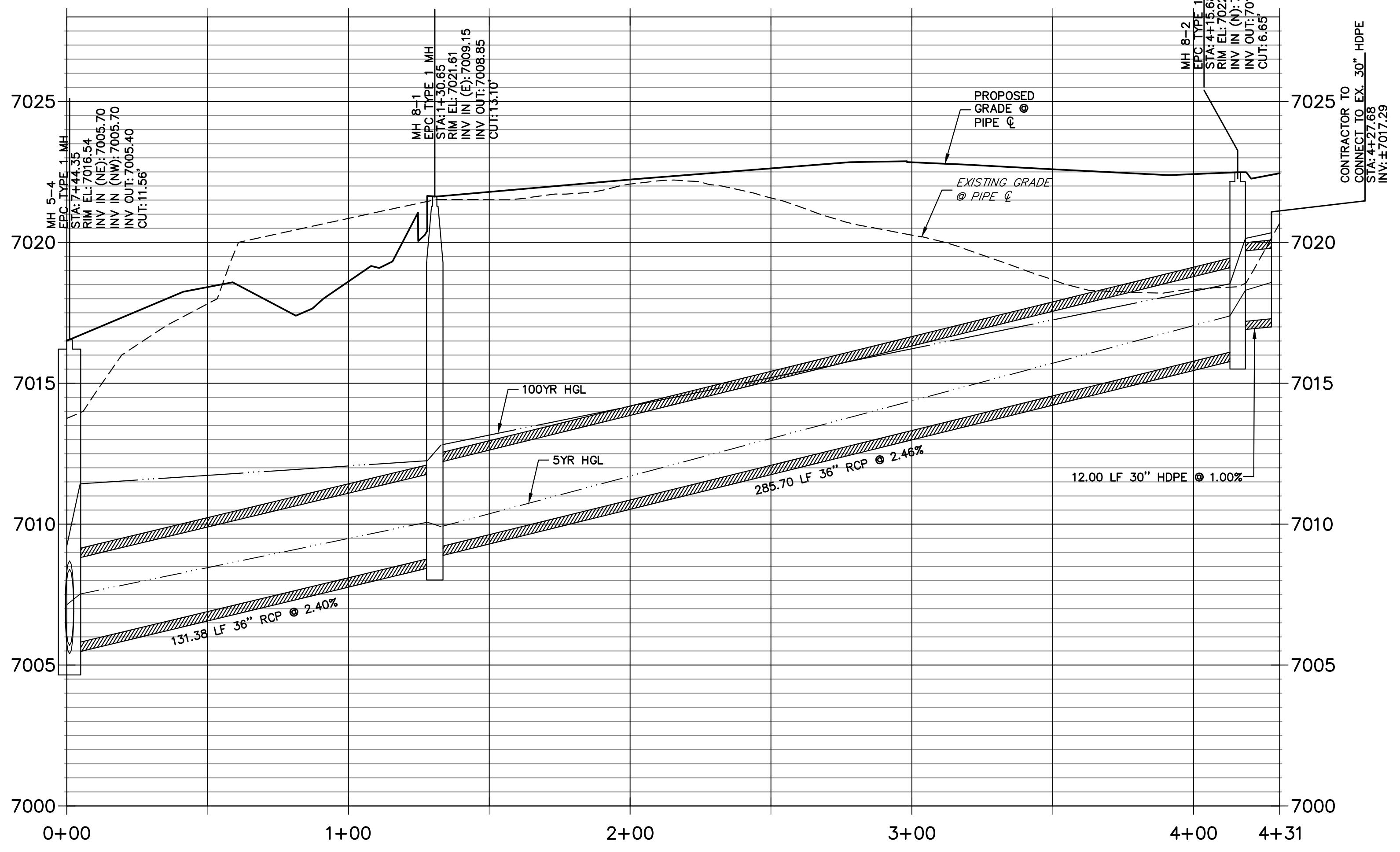
STERLING RANCH FILING 4
 STORM SEWER PLAN
 SHEET 7 OF 14
 JOB NO. 25188.11



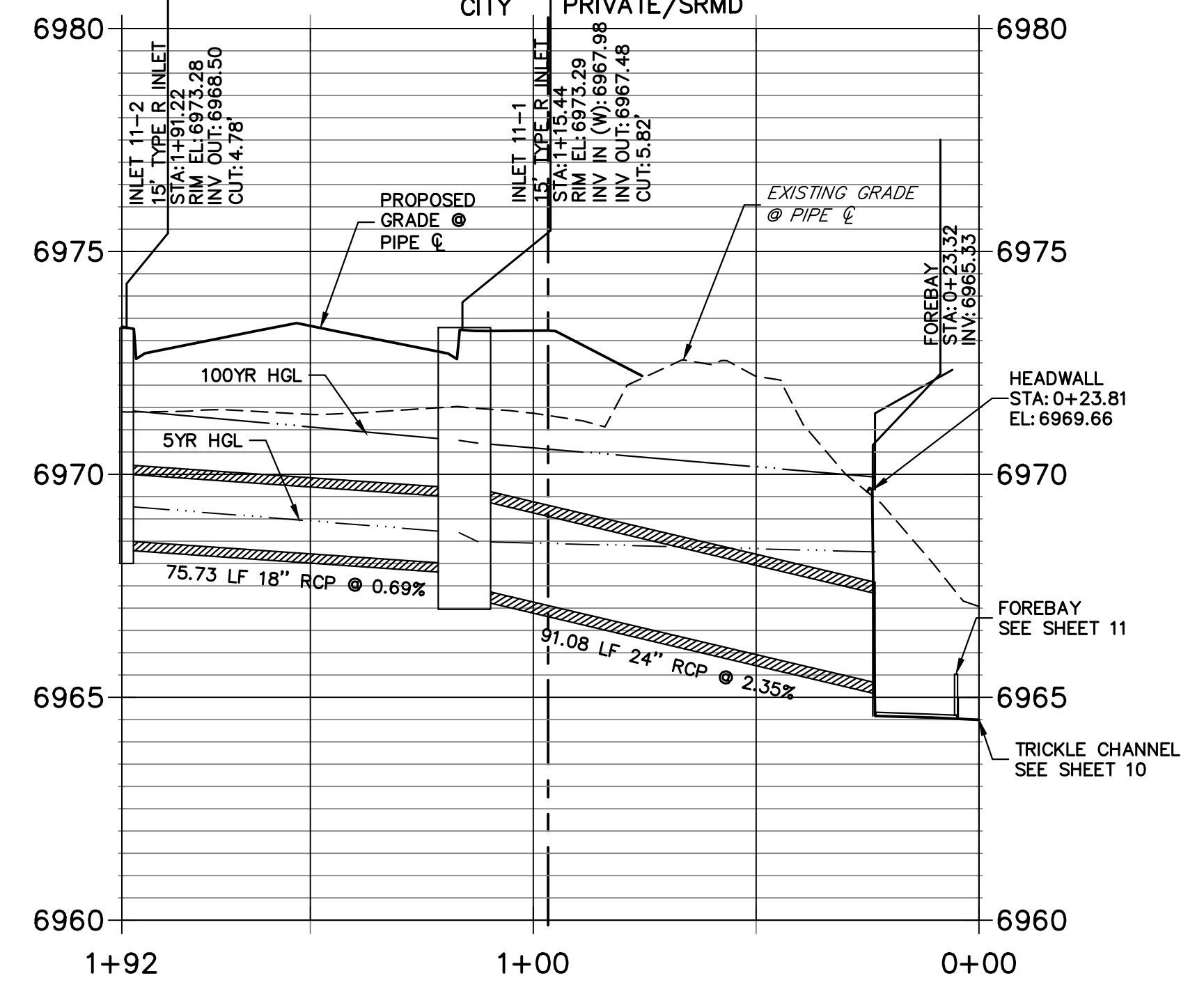
WARNING
HIGH-PRESSURE PIPELINE(S)
 EXCAVATION AND/OR CONSTRUCTION PROHIBITED
 WITHOUT COMPLIANCE WITH STATE ONE-CALL, AND
 WITHOUT WRITTEN PERMISSION FROM
 MAGELLAN PIPELINE COMPANY, L.P.



DP-08 PROFILE
 STA 0+00.00 TO 4+30.60
 PRIVATE/SRMD

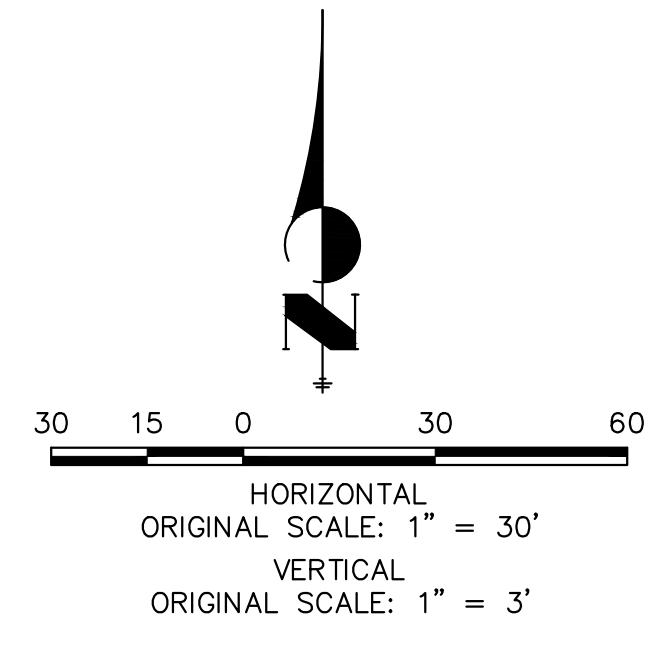


DP11 PROFILE
 STA 0+00.00 TO 1+92.30
 CITY/PRIVATE/SRMD



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NOTE:
 ADD WATER TIGHT JOINT WHEN 100 YR HGL SHOWS PIPE FULLY INUNDATED



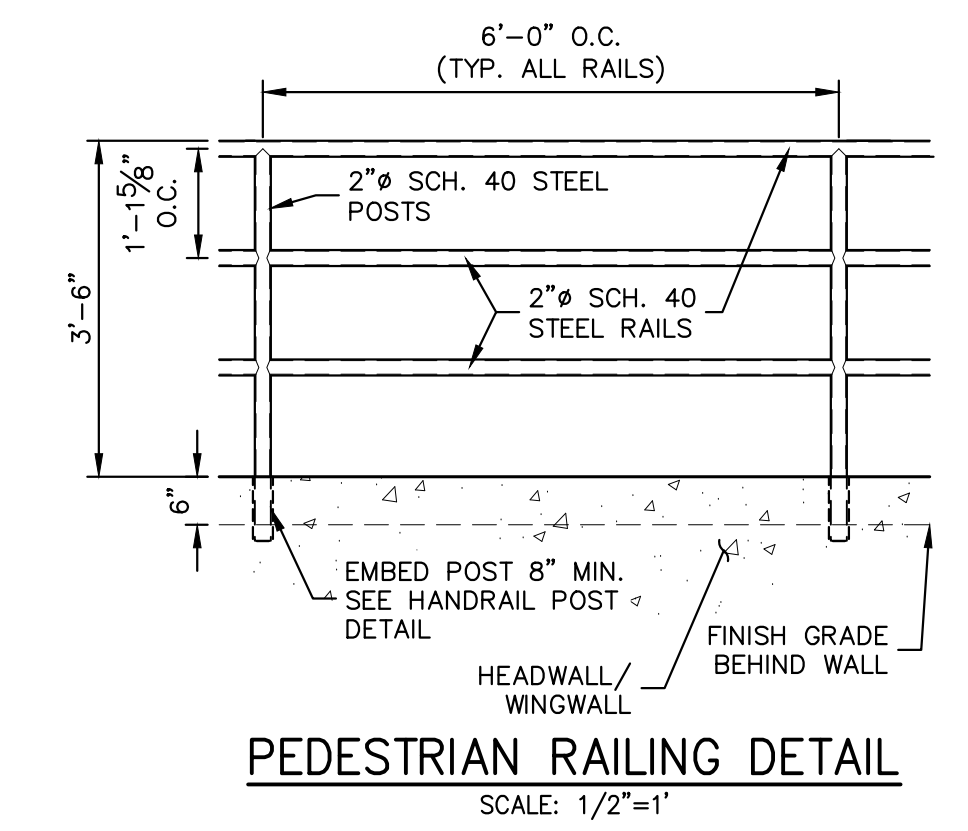
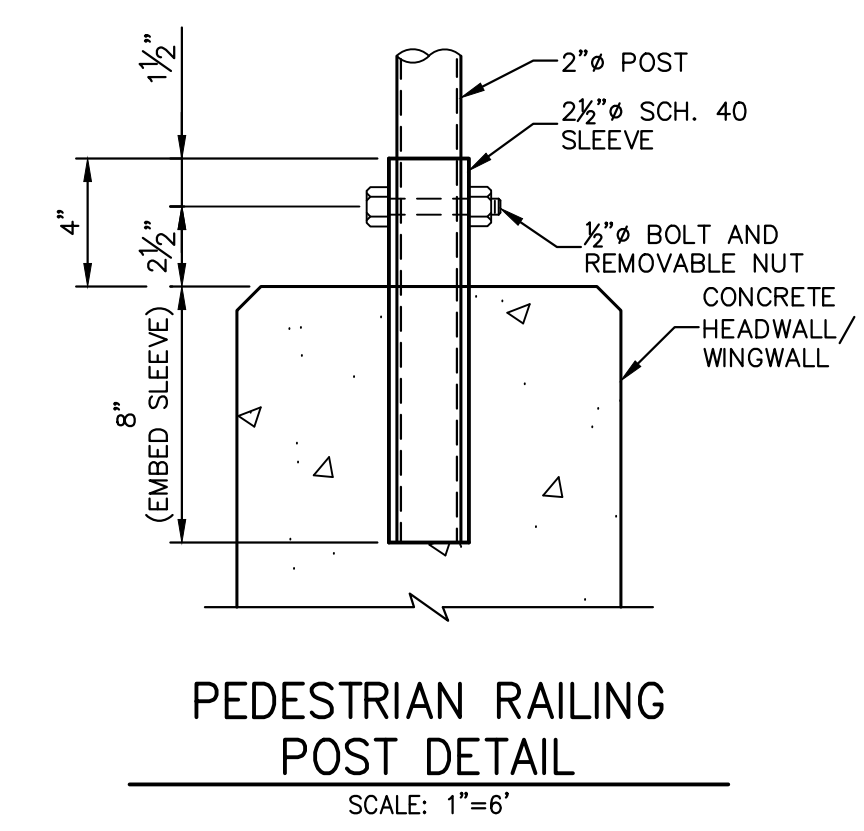
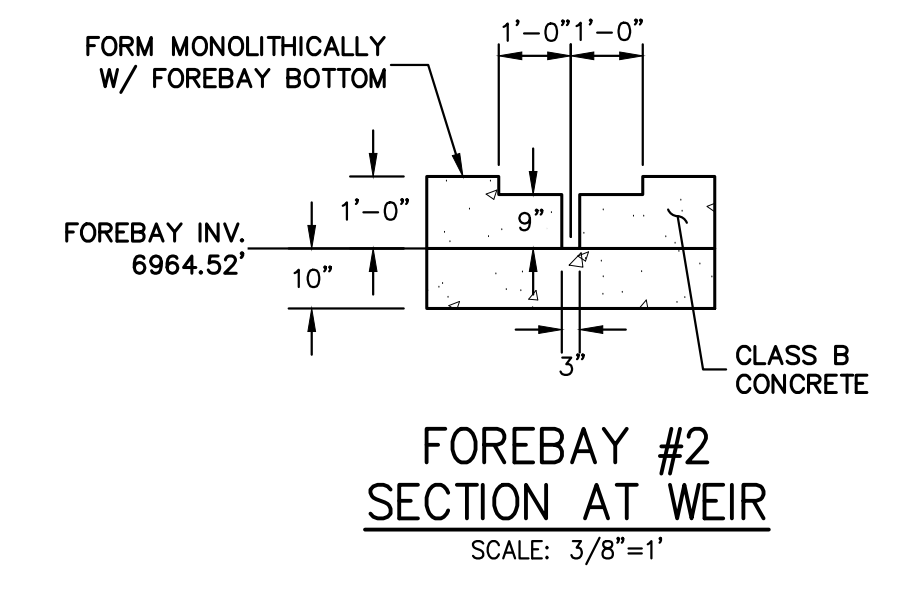
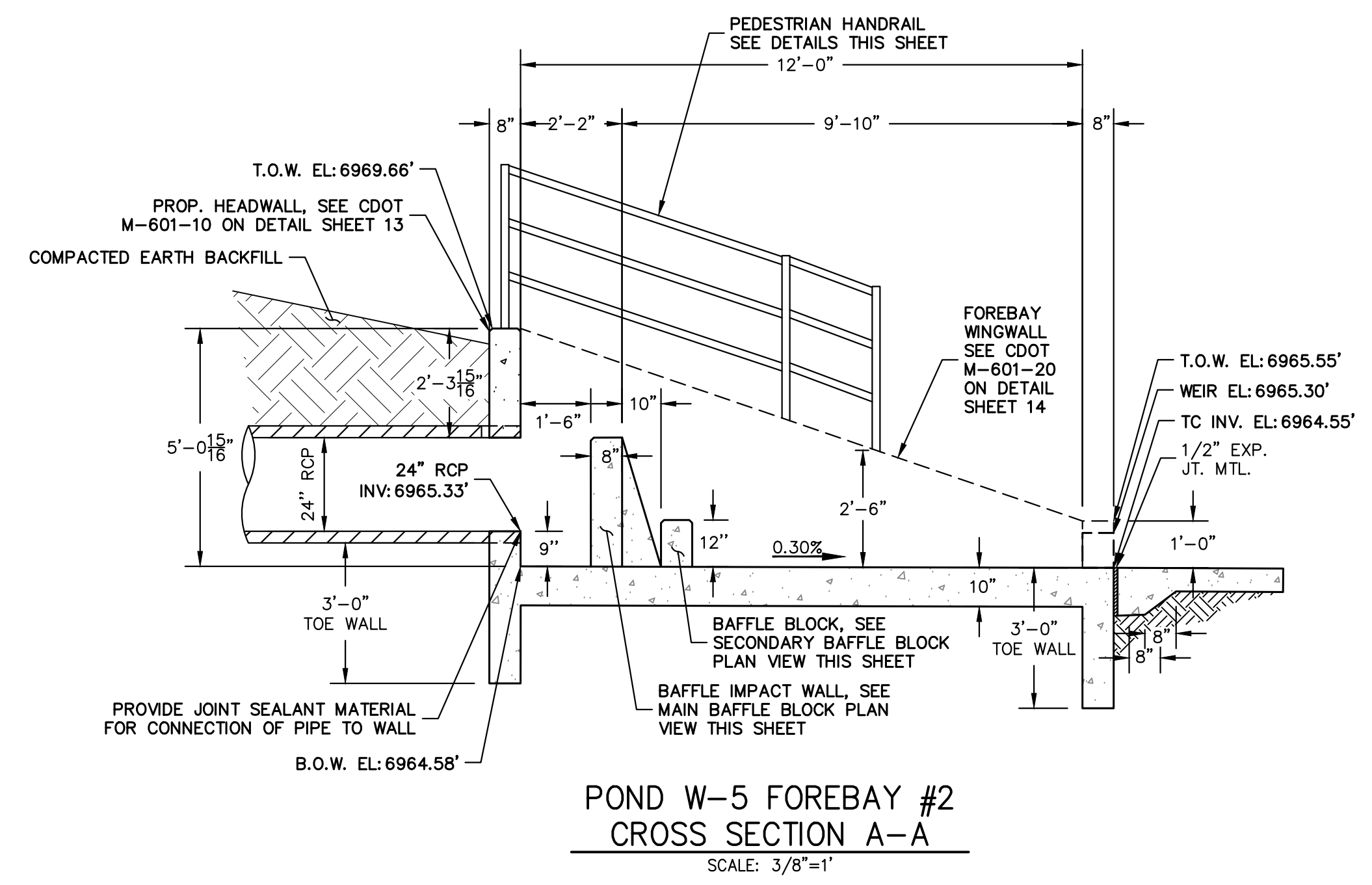
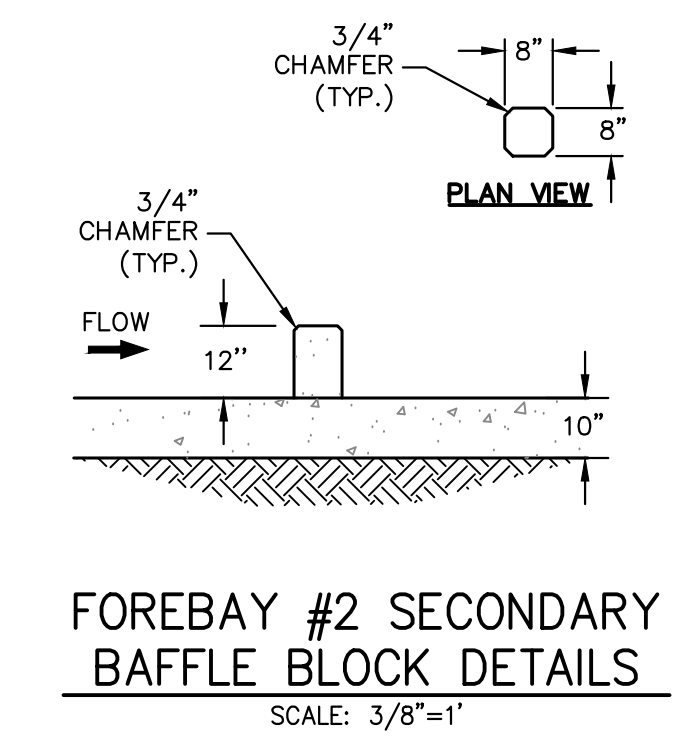
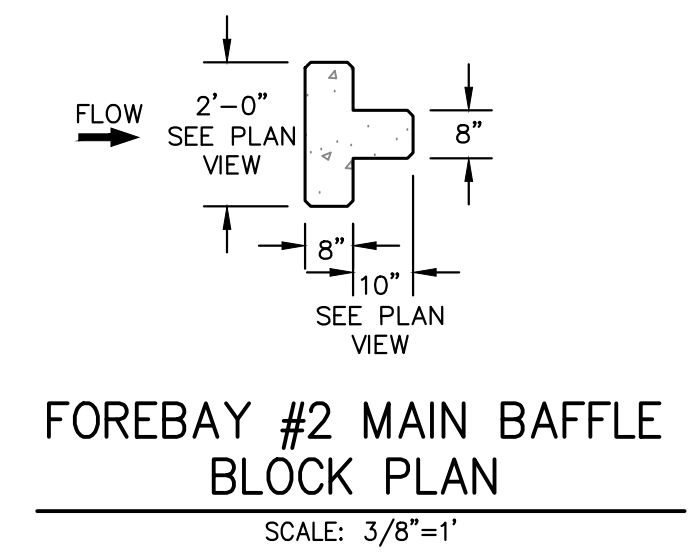
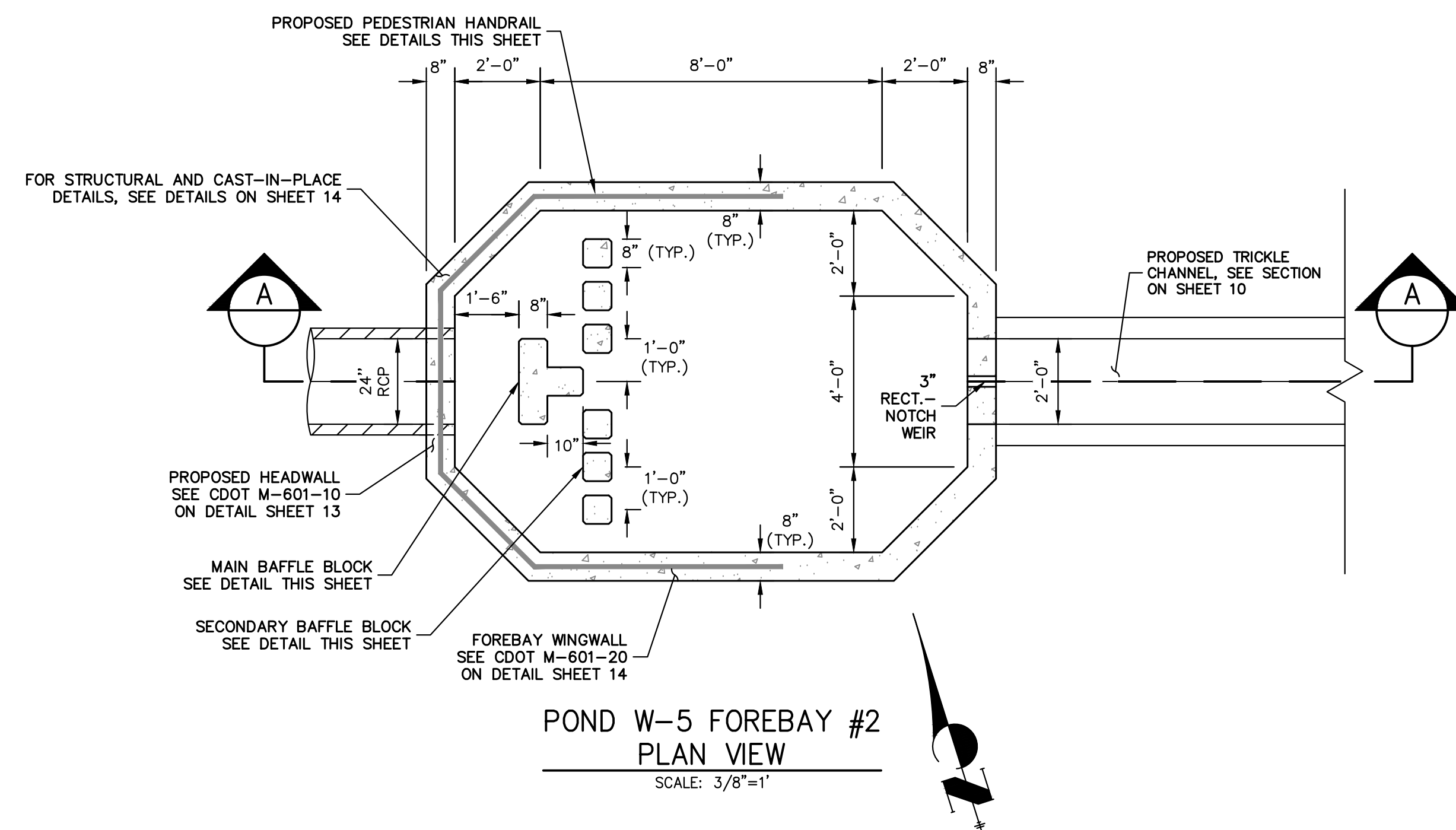
ENGINEER'S STATEMENT
 PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING
 Mike Bramlett, P.E.
 COLORADO P.E. 32314
 FOR AND ON BEHALF OF JR ENGINEERING, A LOCAL ENGINEERING FIRM
 DATE: 08/14/23

| | | | | | |
|-------------------------|--------------------|-----------------|------------|-----|----------|
| STERLING RANCH FILING 4 | DESIGNED BY RAB | DRAWN BY WKN | CHECKED BY | BY | DATE |
| | | | | No. | REVISION |
| STORM SEWER PLAN | | | | | |
| SHEET 8 OF 14 | | | | | |
| JOB NO. 25188.11 | | | | | |

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE FOR THE PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR
SR LAND, LLC
 20 BOULDER CRESCENT
 SUITE 201
 COLORADO SPRINGS, CO 80903
 JAMES F. MORLEY
 (719) 471-1742

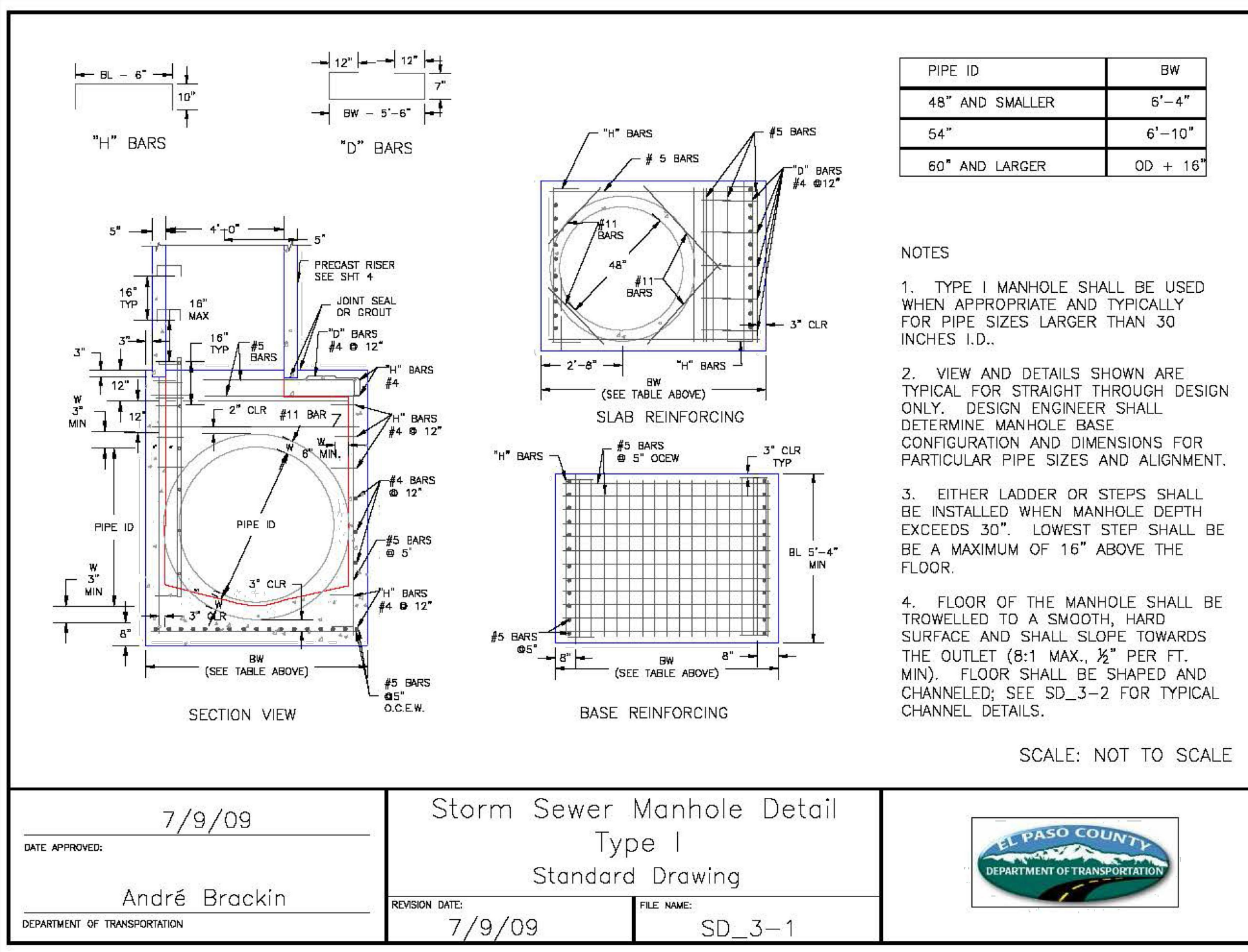
J.R. ENGINEERING
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 Fort Collins 970-491-9888 • www.jrengineering.com



ENGINEER'S STATEMENT
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 Mike A. Bramlett
 MIKE A. BRAMLETT, P.E.
 COLORADO P.E. 32314
 FOR AND ON BEHALF OF JR ENGINEERING
 DATE: 08/14/23

| | | | | |
|-------------------------|-----------------|----------------|------------------|---|
| STERLING RANCH FILING 4 | FOREBAY DETAILS | SHEET 11 OF 14 | JOB NO. 25188.11 | UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, OR ENGINEERING APPROVES THEIR USE FOR PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION. PREPARED FOR SR LAND, LLC 20 BOULDER CRESCENT SUITE 201 COLORADO SPRINGS, CO 80903 JAMES F. MORLEY (719) 471-1742 |
| | | | | |
| BY | DATE | No. | REVISION | |
| H-SCALE | 3/8"=1' | 3/8"=1' | | |
| V-SCALE | 3/8"=1' | 08/14/23 | | |
| DESIGNED BY | RAB | | | |
| DRAWN BY | MC | | | |
| CHECKED BY | | | | |

X:\25188.11\Drawings\Sheet\Drawings\Storm Plans\0102.DWG, Forebay, DL, 8/10/2023, 11:40:56 AM, CS



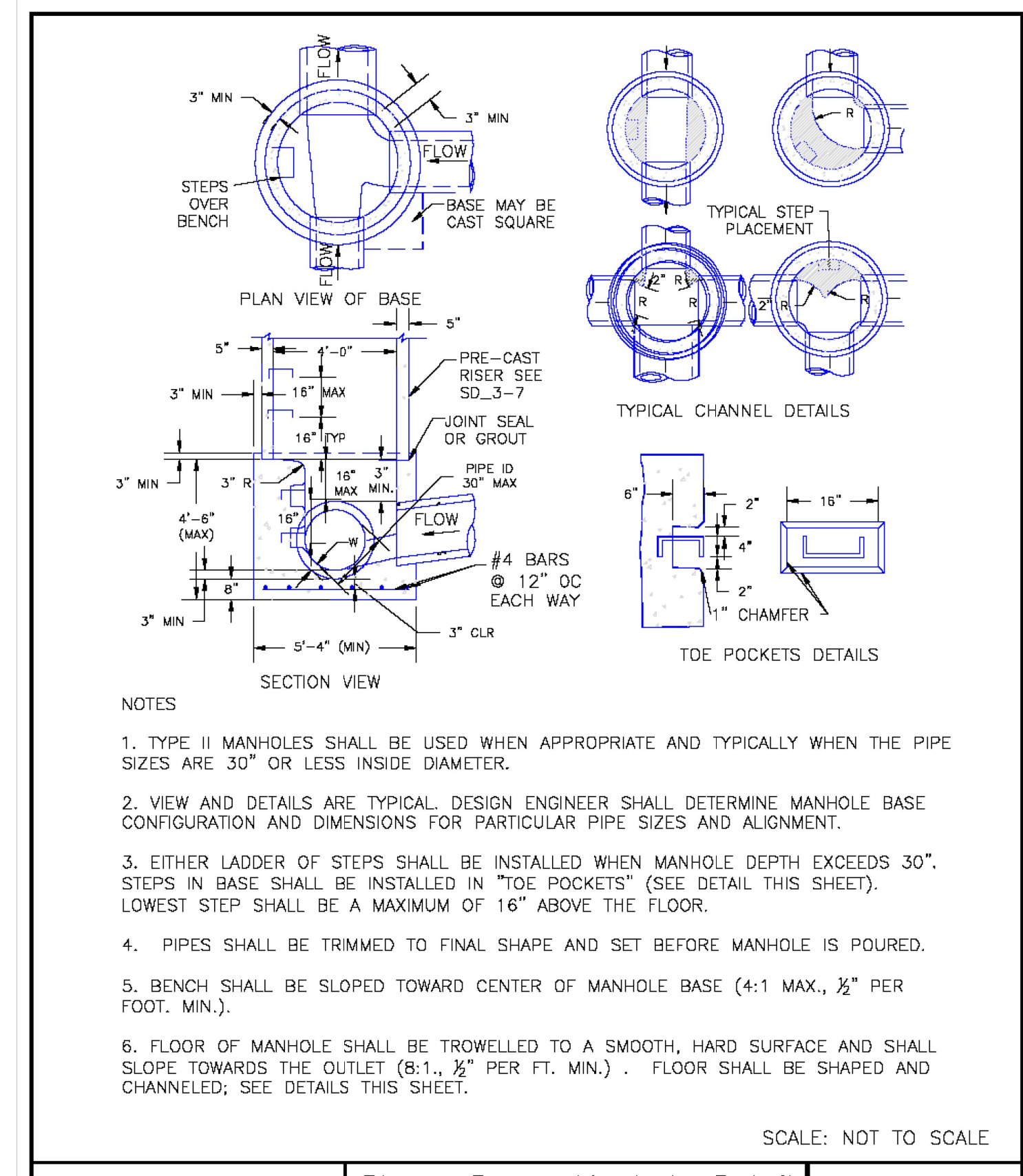
7/9/09 Storm Sewer Manhole Detail Type I Standard Drawing

DATE APPROVED: André Brackin

REVISION DATE: 7/9/09

FILE NAME: SD_3-1

EL PASO COUNTY DEPARTMENT OF TRANSPORTATION



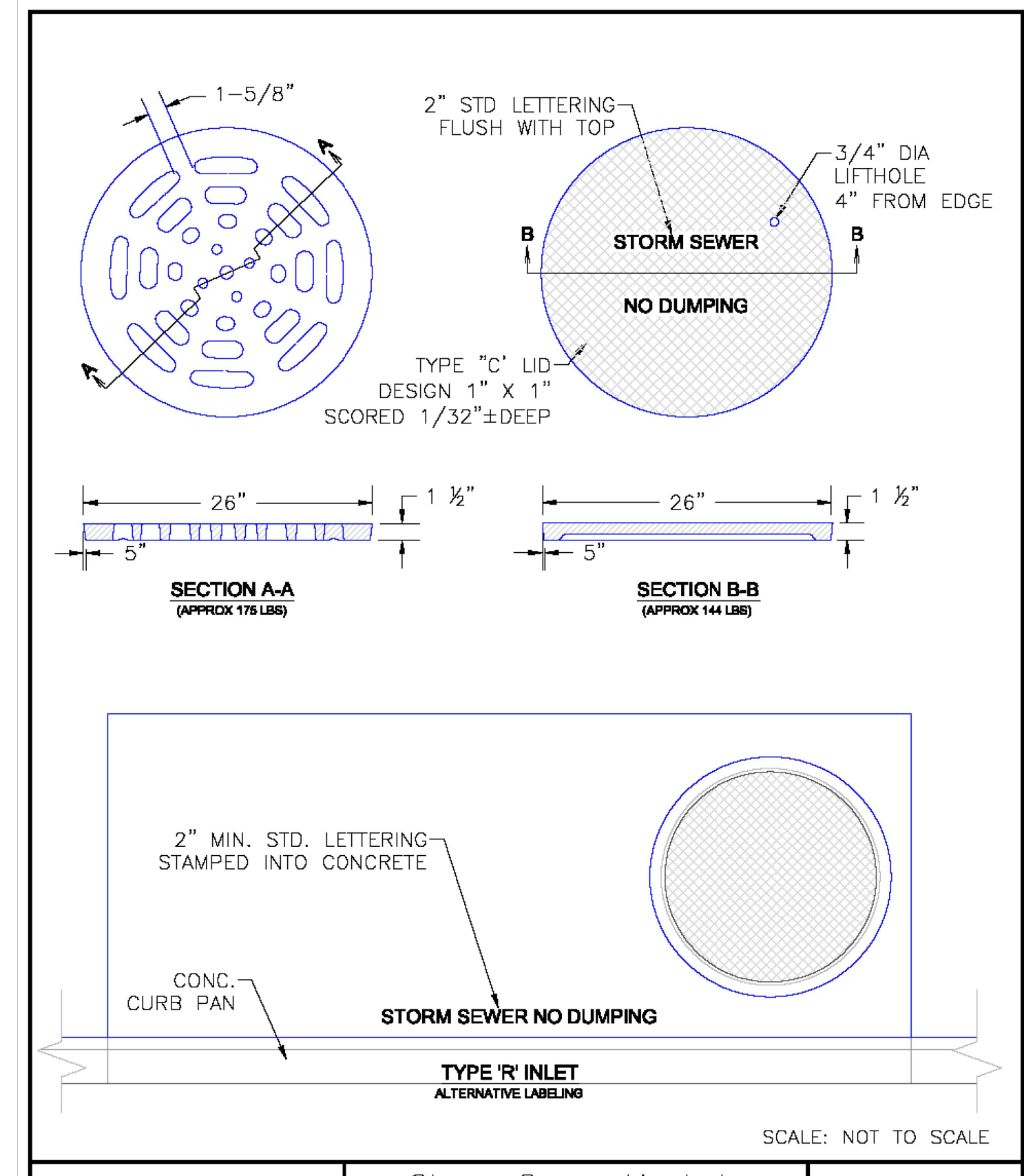
Storm Sewer Manhole Detail Type II Standard Drawing

DATE APPROVED: André P. Brackin

REVISION DATE: 11/10/04

FILE NAME: SD_3-2

EL PASO COUNTY DEPARTMENT OF TRANSPORTATION



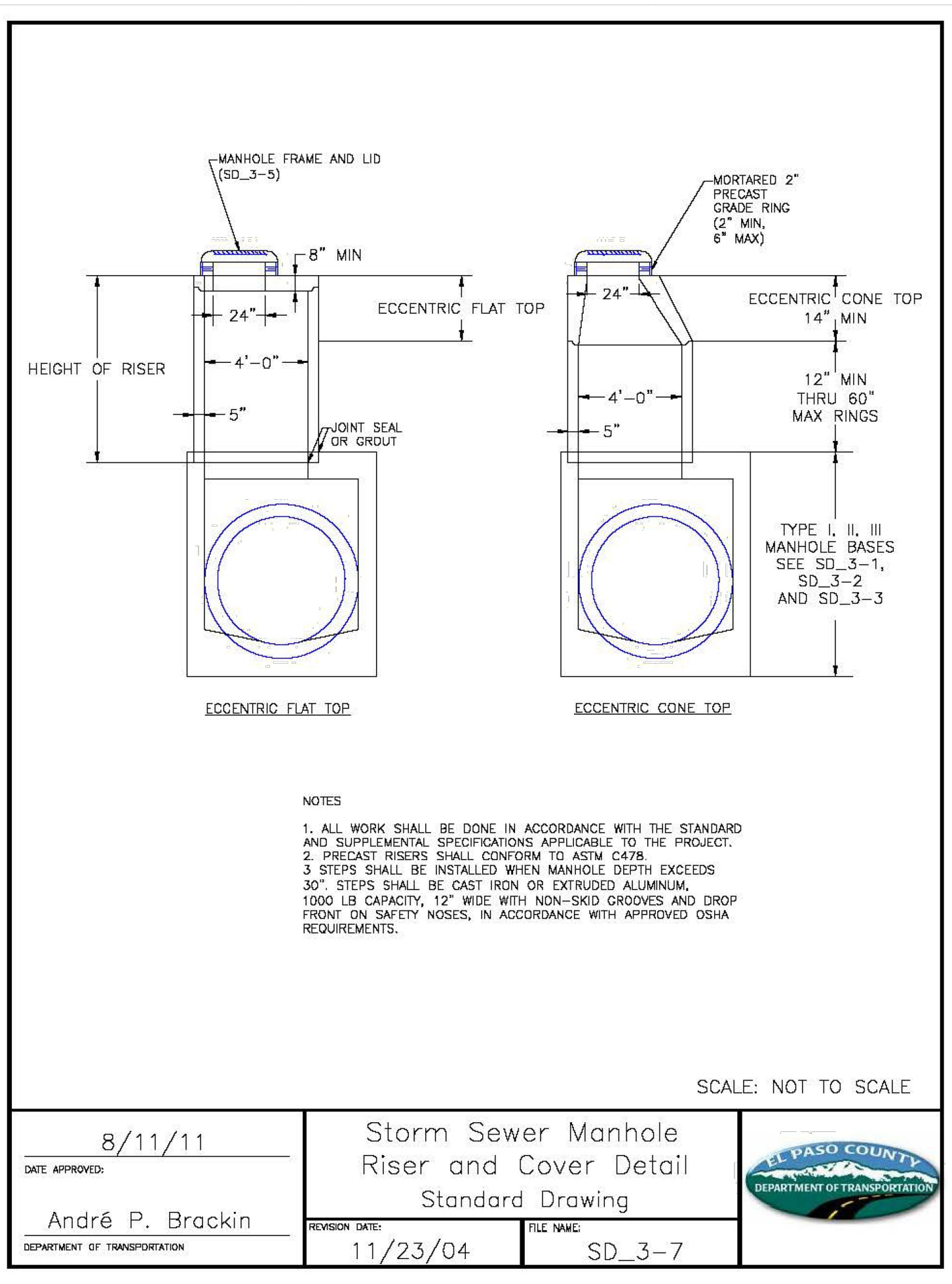
Storm Sewer Manhole Details Standard Drawing

DATE APPROVED: André P. Brackin

REVISION DATE: 9/16/10

FILE NAME: SD_3-5

EL PASO COUNTY DEPARTMENT OF TRANSPORTATION



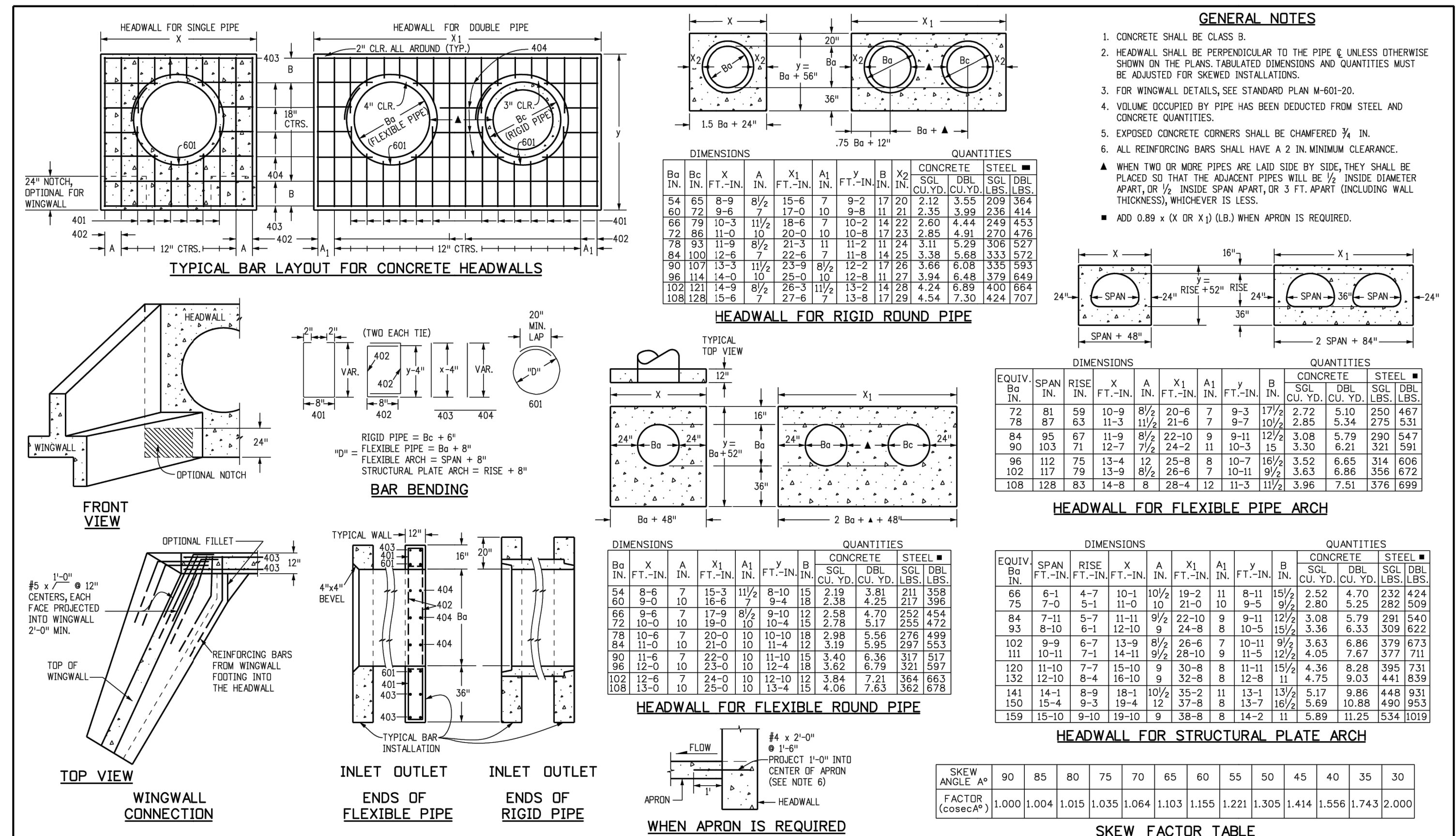
Storm Sewer Manhole Riser and Cover Detail Standard Drawing

DATE APPROVED: André P. Brackin

REVISION DATE: 11/23/04

FILE NAME: SD_3-7

EL PASO COUNTY DEPARTMENT OF TRANSPORTATION



Computer File Information: Creation Date: 07/31/19, Designer: JBK, Last Modification Date: 07/31/19, Detailer: LTA, CAD Ver: MicroStation V8

Sheet Revisions: Date, Comments

Colorado Department of Transportation: 2829 West Howard Place, CDOT HQ, 3rd Floor, Denver, CO, 80204, Phone: 303-757-9001, FAX: 303-757-9868, Project Development Branch, JBK

HEADWALL FOR PIPES STANDARD PLAN NO. M-601-10 Standard Sheet No. 1 of 1

Project Sheet Number: EPC-03/23

FILE NO. SF-22-030

ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING

Mike Brackin

MIKE A. BRAMLETT, P.E. COLORADO P.E. 32314

FOR AND ON BEHALF OF JR ENGINEERING

08/14/23

PREPARED FOR: SR LAND, LLC, 20 BOULDER CRESCENT SUITE 201, COLORADO SPRINGS, CO 80903, JAMES F. MORLEY (719) 471-1742

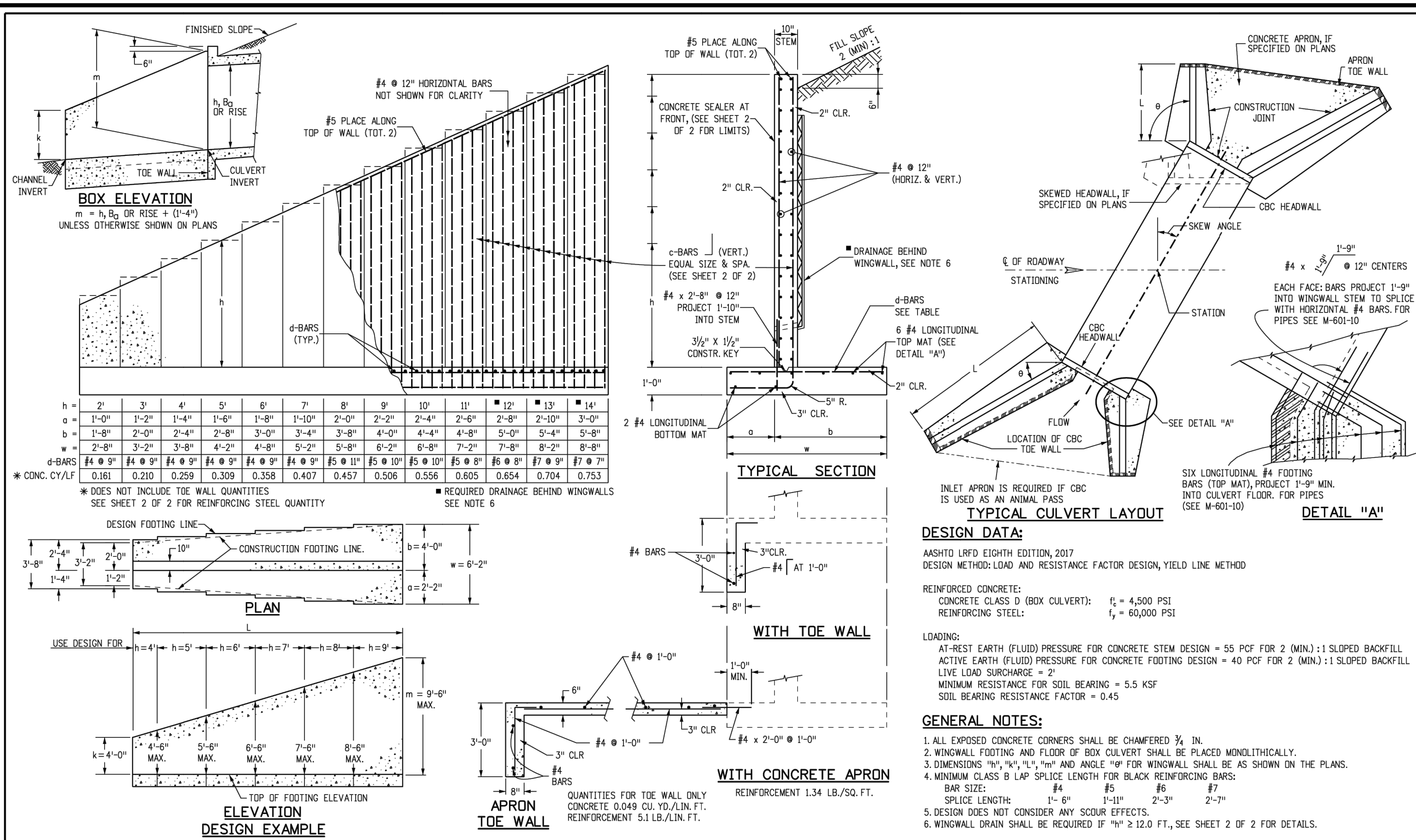
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J.R. ENGINEERING A Westman Company, Central 303-740-9888, Colorado Springs 719-583-2583, Fort Collins 970-491-9888, www.jrengineering.com

STERLING RANCH FILING 4 DETAIL SHEETS

SHEET 13 OF 14

JOB NO. 25188.11



| Computer File Information | | Sheet Revisions | | Colorado Department of Transportation | | WINGWALLS FOR PIPE OR BOX CULVERTS | | STANDARD PLAN NO. | |
|-----------------------------------|---------------------|----------------------------|----------------------------|---------------------------------------|--------------------|------------------------------------|------------------|---------------------|---------------------|
| Creation Date: 07/31/19 | Date: | 2829 West Howard Place | 2829 West Howard Place | CDOT HQ, 3rd Floor | CDOT HQ, 3rd Floor | Denver, CO 80204 | Denver, CO 80204 | Phone: 303-757-9021 | Phone: 303-757-9021 |
| Designer Initials: JKB | Comments: | Project Development Branch | Project Development Branch | JKB | JKB | | | | |
| Issue Modification Date: 07/31/19 | | Project Development Branch | Project Development Branch | JKB | JKB | | | | |
| Detailer Initials: LTA | | Project Development Branch | Project Development Branch | JKB | JKB | | | | |
| CAD Ver.: MicroStation V8 | Scale: Not to Scale | Units: English | Units: English | | | | | | |

GENERAL STRUCTURE NOTES:

ALL WORK SHALL BE DONE IN ACCORDANCE WITH CITY OR COUNTY STANDARD CONSTRUCTION SPECIFICATIONS. EXCEPT AS SHOWN IN THE PLANS, STRUCTURE EXCAVATION AND BACKFILL SHALL BE IN ACCORDANCE WITH CDOT M-206-1, AND M-206-2 EXPANSION JOINT MATERIAL SHALL MEET AASHTO SPECIFICATION M-213

THE INFORMATION SHOWN ON THESE PLANS CONCERNING THE TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERE TO. THE CONTRACTOR SHALL CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 1-800-922-1987 AT LEAST 2 DAYS (NOT INCLUDING THE DAY OF NOTIFICATION) PRIOR TO ANY EXCAVATION OF OTHER.

THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DESIGNING AND PROVIDING ALL BRACING AND SHORING AS REQUIRED FOR THE PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE EXCAVATION PROCEDURES INCLUDING ANY SHORING REQUIRED FOR THE PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION.

THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL METHODS AND MEANS OF CONSTRUCTION AS WELL AS ALL JOB SITE SAFETY & HEALTH PRECAUTIONS.

ALL SOILS WORK INCLUDING (BUT NOT LIMITED TO) PIER DRILLING AND CONSTRUCTION, SOILS EXCAVATION, FILL PLACEMENT, AND STRUCTURE BACKFILL SHALL BE IN ACCORDANCE WITH THE PROJECT GEOTECHNICAL REPORT, UNLESS MORE STRINGENT REQUIREMENTS ARE PRINTED ON THE "IRRIGATION NOTES".

BACKFILL SHALL NOT BEGIN UNTIL CONCRETE WALLS REACH COMPRESSION STRENGTH AT LEAST 80 PERCENT OF THE REQUIRED 28 DAY STRENGTH, 0.8fc'.

REINFORCED CONCRETE:
 CLASS D CONCRETE: $f'_c = 4,500$ psi
 REINFORCING STEEL: $f_y = 60,000$ psi
 ALL CAST-IN-PLACE CONCRETE SHALL BE CLASS D UNLESS NOTED OTHERWISE.

REINFORCING BARS SHALL CONFORM TO ASTM A615, GRADE 60 U.N.O.
 REINFORCING BARS TO BE WELDED SHALL CONFORM TO ASTM A706, GRADE 60.
 ALL REINFORCING, EXCEPT PIER REINFORCING, SHALL BE EPOXY COATED AND SHALL CONFORM TO ASTM A775.
 ALL REINFORCING SHALL HAVE 2" CONCRETE COVER, U.N.O. ON PLANS, 3" AGAINST GROUND (BOTTOM SLAB)
 ALL REINFORCING SHALL BE HOOKED ANCHORED CORNERS AND LAPPED, SEE DETAILS.
 ALL LAP SPICE LOCATIONS SHALL BE SUBMITTED TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

THE FOLLOWING TABLE GIVES THE MINIMUM CLASS B (STAGGERED) LAP SPICE LENGTH FOR EPOXY COATED REINFORCING BARS PLACED IN ACCORDANCE WITH SUBSECTION 602.06. THESE SPICE LENGTHS SHALL BE INCREASED BY 25% FOR BARS SPACED AT LESS THAN 6" ON CENTER. INCREASED BY 40% FOR HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE BELOW (TOP BARS), AND INCREASED BY 75% IF BOTH CONDITIONS EXIST. THE INCREASES ABOVE FOR #6 THRU #11 BARS MAY BE 25%, 13%, AND 42% RESPECTIVELY.

| | | | |
|-----|--------|-----|--------|
| #4 | 1'-3" | #5 | 1'-7" |
| #6 | 2'-5" | #7 | 2'-10" |
| #8 | 3'-9" | #9 | 4'-8" |
| #10 | 5'-11" | #11 | 7'-3" |

WHEN THE CONTRACTOR ELECTS TO SUBSTITUTE EPOXY COATED REINFORCEMENT FOR BLACK REINFORCING BARS. THE MINIMUM LAP SPICE SHALL BE AS DESCRIBED ABOVE.

STATIONS, ELEVATIONS, AND DIMENSIONS CONTAINED IN THESE PLANS ARE CALCULATED FROM A RECENT FIELD SURVEY. THE CONTRACTOR SHALL VERIFY ALL DEPENDENT DIMENSIONS IN THE FIELD BEFORE ORDERING OR FABRICATING ANY MATERIAL.

THE CONTRACTOR SHALL SUBMIT REINFORCING STEEL PLACING DRAWINGS (PRIOR TO CONSTRUCTION) TO THE ENGINEER FOR REVIEW FOR CONFORMANCE WITH THE DESIGN DRAWINGS. THE DESIGN DRAWINGS SHALL GOVERN OVER PLACING DRAWINGS IN ALL CASES UNLESS MODIFICATIONS ARE APPROVED IN WRITING BY ENGINEER.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION.

E.F. = EACH FACE
 F.E. = FAR FACE
 N.F. = NEAR FACE
 I.F. = INSIDE FACE
 T.W. = TWO WAY
 E.S. = EACH SIDE

O.F. = OUTSIDE FACE
 T.&B. = TOP AND BOTTOM
 T.F. = TOP FACE
 B.F. = BOTTOM FACE
 B.F. = TWO FACES
 Lp = LAP LENGTH

CAST-IN-PLACE STRUCTURAL NOTES:

- ALL CONSTRUCTION JOINTS SHALL BE THOROUGHLY CLEANED BEFORE FRESH CONCRETE IS POURED.
- ALL CONSTRUCTION JOINTS NOT SHOWN ON THE PLANS SHALL BE APPROVED BY THE ENGINEER.
- THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION.
- DO NOT BACKFILL UNTIL CONCRETE HAS REACHED DESIGN STRENGTH, f'_c .
- ALL EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED $\frac{3}{4}$ ".
- CONTRACTOR SHALL SUBMIT REINFORCING SHOP DRAWINGS FOR ALL CAST-IN-PLACE STRUCTURES FOR ENGINEER'S APPROVAL PRIOR TO CONSTRUCTION.
- HEADWALLS FOR PIPES SHALL BE CONSTRUCTED PER CDOT M-601-10.
- WINGWALLS SHALL BE CONSTRUCTED PER CDOT M-601-20.

c-BARS AND REINFORCING STEEL QUANTITY (EXCLUDE TOE WALL)

* REINFORCING STEEL QUANTITY INCLUDES STEM AND FOOTING QUANTITIES, BUT DOES NOT INCLUDE TOE WALL QUANTITIES.

| L (MULTIPLE OF m) | k (FT) | ≤ (1.0 x m) | | ≤ (1.5 x m) | | ≤ (2.0 x m) | | ≤ (2.25 x m) | | ≤ (2.5 x m) | | ≤ (2.75 x m) | | ≤ (3.0 x m) | | ≤ (3.5 x m) | | | | | | | |
|-------------------|--------|-------------|---------|-------------|---------|-------------|---------|--------------|---------|-------------|---------|--------------|---------|-------------|---------|-------------|---------|---------|--------|---------|--------|---------|--------|
| | | c-BARS | * REIN. | c-BARS | * REIN. | c-BARS | * REIN. | c-BARS | * REIN. | c-BARS | * REIN. | c-BARS | * REIN. | c-BARS | * REIN. | c-BARS | * REIN. | | | | | | |
| 14 | 4 | #4 @ 10" | 53.60 | #5 @ 10" | 57.95 | #5 @ 10" | 57.10 | #6 @ 8" | 60.22 | #5 @ 7" | 62.43 | #6 @ 7" | 62.09 | #5 @ 6" | 65.38 | #5 @ 6" | 65.15 | #6 @ 6" | 67.10 | #6 @ 6" | 66.94 | #6 @ 7" | 70.66 |
| | 5 | #4 @ 10" | 55.86 | #5 @ 10" | 60.46 | #5 @ 10" | 59.60 | #6 @ 8" | 62.89 | #5 @ 7" | 64.88 | #6 @ 7" | 64.81 | #5 @ 6" | 68.34 | #5 @ 6" | 68.11 | #6 @ 6" | 70.17 | #6 @ 6" | 70.00 | #6 @ 7" | 73.90 |
| | 6 | #5 @ 10" | 64.43 | #6 @ 10" | 70.60 | #6 @ 10" | 69.69 | #6 @ 8" | 74.93 | #6 @ 7" | 74.45 | #6 @ 7" | 73.30 | #6 @ 6" | 83.64 | #6 @ 6" | 83.40 | #6 @ 6" | 83.22 | #6 @ 6" | 83.05 | #7 @ 7" | 89.64 |
| | 7 | #5 @ 10" | 67.29 | #6 @ 10" | 73.76 | #6 @ 10" | 72.83 | #6 @ 8" | 78.32 | #6 @ 7" | 77.84 | #6 @ 7" | 76.87 | #6 @ 6" | 87.45 | #6 @ 6" | 87.21 | #6 @ 6" | 87.02 | #6 @ 6" | 86.86 | #7 @ 7" | 93.73 |
| | 8 | #5 @ 10" | 74.71 | #6 @ 10" | 83.46 | #6 @ 10" | 82.09 | #6 @ 8" | 87.64 | #7 @ 7" | 89.47 | #7 @ 7" | 89.08 | #7 @ 6" | 100.66 | #7 @ 6" | 100.66 | #7 @ 6" | 100.66 | #7 @ 6" | 100.66 | #7 @ 7" | 108.35 |
| | 9 | #5 @ 10" | 78.10 | #6 @ 10" | 87.23 | #6 @ 10" | 85.77 | #6 @ 8" | 91.03 | #6 @ 7" | 92.74 | #7 @ 7" | 93.54 | #7 @ 6" | 105.90 | #7 @ 6" | 105.90 | #7 @ 6" | 105.90 | #7 @ 6" | 105.90 | #7 @ 7" | 114.13 |
| | 4 | #4 @ 10" | 50.51 | #4 @ 10" | 49.25 | #5 @ 10" | 53.71 | #5 @ 10" | 53.09 | #5 @ 10" | 52.36 | #5 @ 9" | 53.85 | #5 @ 8" | 55.54 | #5 @ 7" | 57.85 | #5 @ 7" | 57.67 | #5 @ 7" | 57.51 | #6 @ 9" | 59.93 |
| | 5 | #4 @ 10" | 52.66 | #4 @ 10" | 51.37 | #5 @ 10" | 56.09 | #5 @ 10" | 55.46 | #5 @ 10" | 54.99 | #5 @ 9" | 56.29 | #5 @ 8" | 58.08 | #5 @ 7" | 60.51 | #5 @ 7" | 60.33 | #5 @ 7" | 60.17 | #6 @ 9" | 62.72 |
| | 6 | #4 @ 10" | 54.92 | #5 @ 10" | 59.48 | #5 @ 10" | 60.31 | #6 @ 9" | 63.56 | #6 @ 9" | 62.78 | #6 @ 8" | 64.87 | #6 @ 8" | 66.53 | #6 @ 7" | 69.28 | #6 @ 7" | 69.02 | #6 @ 7" | 68.86 | #7 @ 9" | 72.81 |
| | 7 | #4 @ 10" | 57.36 | #5 @ 10" | 62.16 | #5 @ 10" | 63.03 | #6 @ 9" | 66.66 | #6 @ 9" | 65.76 | #6 @ 8" | 68.78 | #6 @ 8" | 72.75 | #6 @ 7" | 76.52 | #6 @ 7" | 76.35 | #6 @ 7" | 76.20 | #7 @ 9" | 80.20 |
| | 8 | #5 @ 10" | 65.30 | #6 @ 10" | 72.82 | #6 @ 10" | 72.97 | #6 @ 7" | 76.67 | #6 @ 7" | 75.19 | #6 @ 6" | 78.67 | #6 @ 6" | 86.37 | #6 @ 6" | 86.37 | #6 @ 6" | 86.37 | #6 @ 6" | 86.37 | #6 @ 7" | 92.64 |
| | 9 | #5 @ 10" | 69.37 | #6 @ 10" | 76.10 | #6 @ 10" | 75.81 | #6 @ 8" | 81.49 | #6 @ 7" | 80.37 | #6 @ 7" | 78.87 | #6 @ 6" | 90.59 | #6 @ 6" | 90.29 | #6 @ 6" | 90.29 | #6 @ 6" | 90.29 | #6 @ 7" | 97.00 |
| | 2 | #4 @ 10" | 43.91 | #4 @ 10" | 42.65 | #4 @ 10" | 47.82 | #4 @ 10" | 47.11 | #4 @ 10" | 46.28 | #4 @ 9" | 47.29 | #4 @ 8" | 49.61 | #4 @ 7" | 52.04 | #4 @ 7" | 51.87 | #4 @ 7" | 51.71 | #5 @ 9" | 53.87 |
| | 3 | #4 @ 10" | 45.82 | #4 @ 10" | 44.55 | #4 @ 10" | 49.71 | #4 @ 10" | 49.01 | #4 @ 10" | 48.12 | #4 @ 9" | 49.22 | #4 @ 8" | 51.54 | #4 @ 7" | 54.07 | #4 @ 7" | 53.90 | #4 @ 7" | 53.74 | #5 @ 9" | 56.00 |
| | 4 | #4 @ 10" | 47.80 | #4 @ 10" | 46.51 | #4 @ 10" | 51.45 | #4 @ 10" | 50.76 | #4 @ 10" | 49.89 | #4 @ 9" | 50.93 | #4 @ 8" | 53.26 | #4 @ 7" | 55.89 | #4 @ 7" | 55.72 | #4 @ 7" | 55.56 | #5 @ 9" | 57.73 |
| | 5 | #4 @ 10" | 49.84 | #4 @ 10" | 48.53 | #4 @ 10" | 53.68 | #4 @ 10" | 53.03 | #4 @ 10" | 52.15 | #4 @ 9" | 53.25 | #4 @ 8" | 55.58 | #4 @ 7" | 58.21 | #4 @ 7" | 58.04 | #4 @ 7" | 57.87 | #5 @ 9" | 60.00 |
| | 6 | #4 @ 10" | 51.99 | #4 @ 10" | 50.65 | #4 @ 10" | 55.94 | #4 @ 10" | 55.24 | #4 @ 10" | 54.35 | #4 @ 9" | 55.45 | #4 @ 8" | 57.78 | #4 @ 7" | 60.42 | #4 @ 7" | 60.25 | #4 @ 7" | 60.08 | #5 @ 9" | 62.48 |
| | 7 | #4 @ 10" | 54.30 | #5 @ 10" | 58.80 | #5 @ 10" | 57.87 | #5 @ 8" | 61.10 | #5 @ 8" | 60.61 | #5 @ 10" | 63.43 | #5 @ 10" | 63.11 | #6 @ 9" | 65.35 | #6 @ 9" | 65.18 | #6 @ 9" | 65.01 | #6 @ 9" | 67.96 |
| | 8 | #5 @ 10" | 62.91 | #6 @ 10" | 61.45 | #6 @ 10" | 67.46 | #6 @ 10" | 66.88 | #6 @ 10" | 66.10 | #6 @ 9" | 67.44 | #6 @ 8" | 70.63 | #6 @ 7" | 72.87 | #6 @ 7" | 72.70 | #6 @ 7" | 72.53 | #6 @ 9" | 75.93 |
| | 9 | #5 @ 10" | 65.84 | #6 @ 10" | 64.15 | #6 @ 10" | 70.44 | #6 @ 10" | 70.02 | #6 @ 10" | 69.33 | #6 @ 9" | 70.86 | #6 @ 8" | 74.13 | #6 @ 7" | 76.37 | #6 @ 7" | 76.20 | #6 @ 7" | 76.03 | #6 @ 9" | 79.20 |
| | 2 | #4 @ 10" | 40.42 | #4 @ 10" | 40.42 | #4 @ 10" | 45.21 | #4 @ 10" | 44.58 | #4 @ 10" | 43.79 | #4 @ 9" | 44.87 | #4 @ 8" | 47.19 | #4 @ 7" | 49.72 | #4 @ 7" | 49.55 | #4 @ 7" | 49.38 | #5 @ 9" | 51.43 |
| | 3 | #4 @ 10" | 42.48 | #4 @ 10" | 41.16 | #4 @ 10" | 46.28 | #4 @ 10" | 45.64 | #4 @ 10" | 44.85 | #4 @ 9" | 45.97 | #4 @ 8" | 48.30 | #4 @ 7" | 50.83 | #4 @ 7" | 50.66 | #4 @ 7" | 50.49 | #5 @ 9" | 52.58 |
| | 4 | #4 @ 10" | 44.54 | #4 @ 10" | 43.22 | #4 @ 10" | 48.03 | #4 @ 10" | 47.39 | #4 @ 10" | 46.60 | #4 @ 9" | 47.72 | #4 @ 8" | 50.05 | #4 @ 7" | 52.58 | #4 @ 7" | 52.41 | #4 @ 7" | 52.24 | #5 @ 9" | 54.67 |
| | 5 | #4 @ 10" | 46.60 | #4 @ 10" | 45.28 | #4 @ 10" | 50.03 | #4 @ 10" | 49.39 | #4 @ 10" | 48.60 | #4 @ 9" | 49.73 | #4 @ 8" | 52.06 | #4 @ 7" | 54.59 | #4 @ 7" | 54.42 | #4 @ 7" | 54.25 | #5 @ 9" | 56.74 |
| | 6 | #4 @ 10" | 48.76 | #4 @ 10" | 47.44 | #4 @ 10" | 52.15 | #4 @ 10" | 51.51 | #4 @ 10" | 50.72 | #4 @ 9" | 51.85 | #4 @ 8" | 54.18 | #4 @ 7" | 56.71 | #4 @ 7" | 56.54 | #4 @ 7" | 56.37 | #5 @ 9" | 58.81 |
| | 7 | #4 @ 10" | 50.92 | #5 @ 10" | 50.00 | #5 @ 10" | 54.75 | #5 @ 10" | 54.11 | #5 @ 10" | 53.32 | #5 @ 9" | 54.45 | #5 @ 8" | 56.78 | #5 @ 7" | 59.31 | #5 @ 7" | 59.14 | #5 @ 7" | 58.97 | #5 @ 9" | 61.04 |
| | 8 | #4 @ 10" | 53.08 | #5 @ 10" | 52.16 | #5 @ 10" | 56.91 | #5 @ 10" | 56.27 | #5 @ 10" | 55.48 | #5 @ 9" | 56.61 | #5 @ 8" | 58.94 | #5 @ 7" | 61.47 | #5 @ 7" | 61.30 | #5 @ 7" | 61.13 | #5 @ 9" | 63.20 |
| | 9 | #4 @ 10" | 55.24 | #5 @ 10" | 54.32 | #5 @ 10" | 59.05 | #5 @ 10" | 58.41 | #5 @ 10" | 57.62 | #5 @ 9" | 58.75 | #5 @ 8" | 61.08 | #5 @ 7" | 63.61 | #5 @ 7" | 63.44 | #5 @ 7" | 63.27 | #5 @ 9" | 65.29 |
| | 2 | #4 @ 10" | 39.84 | #4 @ 10" | 38.53 | #4 @ 10" | 43.31 | #4 @ 10" | 42.63 | #4 @ 10" | 41.76 | #4 @ 9" | 42.87 | #4 @ 8" | 45.19 | #4 @ 7" | 47.72 | #4 @ 7" | 47.55 | #4 @ 7" | 47.38 | #5 @ 9" | 49.43 |
| | 3 | #4 @ 10" | 41.88 | #4 @ 10" | 40.55 | #4 @ 10" | 45.34 | #4 @ 10" | 44.66 | #4 @ 10" | 43.79 | #4 @ 9" | 44.90 | #4 @ 8" | 47.22 | #4 @ 7" | 49.75 | #4 @ 7" | 49.58 | #4 @ 7" | 49.41 | #5 @ 9" | 51.48 |
| | 4 | #4 @ 10" | 43.92 | #4 @ 10" | 42.59 | #4 @ 10" | 47.33 | #4 @ 10" | 46.65 | #4 @ 10" | 45.78 | #4 @ 9" | 46.89 | #4 @ 8" | 49.21 | #4 @ 7" | 51.74 | #4 @ 7" | 51.57 | #4 @ 7" | 51.40 | #5 @ 9" | 53.45 |
| | 5 | #4 @ 10" | 45.96 | #4 @ 10" | 44.63 | #4 @ 10" | 49.37 | #4 @ 10" | 48.69 | #4 @ 10" | 47.82 | #4 @ 9" | 48.93 | #4 @ 8" | 51.25 | #4 @ 7" | 53.78 | #4 @ 7" | 53.61 | #4 @ 7" | 53.44 | #5 @ 9" | 55.50 |
| | 6 | #4 @ 10" | 48.00 | #4 @ 10" | 46.67 | #4 @ 10" | 51.41 | #4 @ 10" | 50.73 | #4 @ 10" | 49.86 | #4 @ 9" | 50.97 | #4 @ 8" | 53.29 | #4 @ 7" | 55.82 | #4 @ 7" | 55.65 | #4 @ 7" | 55.48 | #5 @ 9" | 57.55 |
| | 7 | #4 @ 10" | 50.04 | #4 @ 10" | 48.71 | #4 @ 10" | 53.45 | #4 @ 10" | 52.77 | #4 @ 10" | 51.90 | #4 @ 9" | 53.01 | #4 @ 8" | 55.33 | #4 @ 7" | 57.86 | #4 @ 7" | 57.69 | #4 @ 7" | 57.52 | #5 @ 9" | 59.60 |
| | 8 | #4 @ 10" | 52.08 | #4 @ 10" | 50.75 | #4 @ 10" | 55.49 | #4 @ 10" | 54.81 | #4 @ 10" | 53.94 | #4 @ 9" | 55.05 | #4 @ 8" | 57.37 | #4 @ 7" | 60.00 | #4 @ 7" | 59.83 | #4 @ 7" | 59.66 | #5 @ 9" | 61.65 |