# GRANDVEW RESERVE METROPOLITAN DISTRICT
# INTERCEPTOR SEWER
# CONSTRUCTION DOCUMENTS

AND EROSION CONTROL PLANS
COUNTY OF EL PASO, STATE OF COLORADO

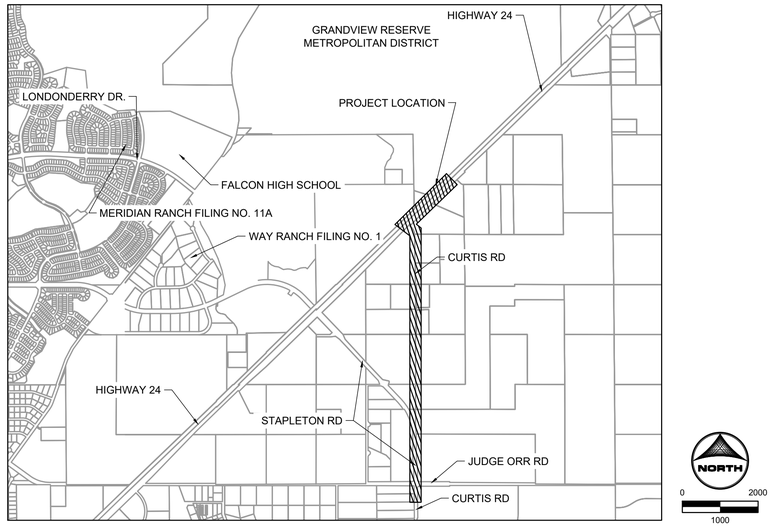
**HORIZONTAL CONTROL**
MODIFIED COORDINATE SYSTEM - SEE SHEETS IN DRAWINGS

**VERTICAL DATUM**
NAVD88

## SHEET INDEX



## LOCATION MAP




VICINITY MAP
1"=2000'

**PROJECT CONTACTS:**


OWNER/DEVELOPER
D.R. HORTON
9555 S. KINGSTON COURT, SUITE 200
ENGELWOOD, CO 80112
TELE: (303) 488-0061
ATTN: RILEY HILLEN, PE AND BRYAN REID, PE
EMAIL: RHILLEN@DRHORTON.COM AND
BAREID1@DRHORTON.COM

APPLICANT
HR GREEN
5613 DTC PARKWAY | SUITE 950
GREENWOOD VILLAGE, CO 80111
TELE:(720) 602-4999
ATTN: GREGORY PANZA P.E.
EMAIL: GPANZA@HRGREEN.COM

CIVIL ENGINEER
HR GREEN
5613 DTC PARKWAY | SUITE 950
GREENWOOD VILLAGE, CO 80111
TELE: (720) 602-4999
ATTN: GREGORY PANZA P.E.
EMAIL: GPANZA@HRGREEN.COM

GEOTECHNICAL ENGINEER
COMPANY: CTL | THOMPSON
ADDRESS: 5170 MARK DABLING BLVD
COLORADO SPRINGS, CO 80918
TELE: (719) 528-8300
ATTN: JEFF JONES
EMAIL: COLORADOSPRINGS@CTLTHOMPSON.COM

TRAFFIC ENGINEER
LSC TRANSPORTATION CONSULTANTS INC.
2504 EAST PIKES PEAK AVENUE, SUITE 304
COLORADO SPRINGS, CO 80909
TELE: &719) 633-2868
ATTN: JEFFREY C. HODSON, P.E.
EMAIL: LSC@LSCTRANS.COM

SURVEYOR
EDWARD-JAMES SURVEYING, INC.
926 ELKTON DRIVE
COLORADO SPRINGS, CO 80907
TELE: (719) 576-1216
ATTN: JONATHAN W. TESSIN
EMAIL: JTESSIN@EJSURVEYING.COM


**UTILITY CONTACTS**


WATER
GRANDVIEW RESERVE METROPOLITAN DISTRICT
1272 KELLY JOHNSON BLVD. SUITE 100
COLORADO SPRINGS, CO 80921
TELE: (719 499-8416
ATTN: PAUL HOWARD
EMAIL: PAULINFINITY1@MSN.COM

WASTEWATER / WATER
WOODMEN HILLS METRO DISTRICT
8046 EASTONVILLE ROAD
FALCON, CO 80831
TELE: (719) 495-2500
CONTACT: CODY RITTER
EMAIL: CODY@WHMD.ORG

ELECTRIC / FIBER
MOUNTAIN VIEW ELECTRIC ASSOCIATION
11140 E. WOODMEN RD.
FALCON, CO 80831
TELE: (800) 388-9881
ATTN: GINA PERRY
EMAIL: GINA.P@MVEA.COOP

NATURAL GAS
BLACK HILLS ENERGY
198 COUNTY LINE RD.
PALMER LAKE, CO 80133
TELE: (719) 332-5856
ATTN: BOB SWATEK
EMAIL: BOB.SWATEK@BLACKHILLSCORP.COM

FIRE
FALCON FIRE PROTECTION DISTRICT
7030 OLD MERIDIAN RD.
FALCON, CO 80831
TELE: (719) 495-4050
ATTN: TRENT HARWIG
EMAIL: THARWIG@FALCONFIREPD.ORG

COMMUNICATIONS
CENTURY LINK
ZAYO
USWEST


HRGreen


1975 RESEARCH PARKWAY, SUITE 230 | COLORADO SPRINGS, CO 80920
Phone: 719.300.4140 | Toll Free: 800.728.7805 | Fax: 713.965.0044 | HRGreen.com


### EL PASO COUNTY:

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

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

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

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

### ENGINEER'S STATEMENT (FOR GEC PLAN WITHIN CONSTRUCTION DRAWING SET):

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

GREG PANZA, P.E. #37081 _____ DATE _____
FOR AND ON BEHALF OF HR GREEN, INC.

### OWNER'S STATEMENT (FOR GEC PLAN WITHIN CONSTRUCTION DRAWING SET):

I, THE OWNER/DEVELOPER HAVE READ AND WILL COMPLY WITH THE REQUIREMENTS OF THE GRADING AND EROSION CONTROL PLAN AND ALL OF THE REQUIREMENTS SPECIFIED IN THESE DETAILED PLANS AND SPECIFICATION

OWNER'S SIGNATURE _____ DATE _____

### ENGINEERS STATEMENT:

THE DETAILED PLANS AND SPECIFICATIONS WERE PREPARED UNDER MY DIRECTION AND SUPERVISION. SAID DETAILS AND SPECIFICATIONS HAVE BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE STATE OF COLORADO.

GREG PANZA, P.E. #37081 _____ DATE _____
FOR AND ON BEHALF OF HR GREEN, INC. DATE

### SEWER MAIN EXTENSIONS:

ANY CHANGES OR ALTERATIONS AFFECTING THE GRADE, ALIGNMENT, ELEVATIONS 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_____

_____

### 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
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.

PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

**PCD #PPR2421**

DRAWN BY: JMM JOB DATE: 7/17/2024
APPROVED: GP JOB NUMBER: 201662.07
CAD DATE: 1/7/2025
CAD FILE: \\hrgreen.com\HRG\Data\2020\201662.07\CAD\Dwgs\C\Gravity_Line\Gr_Cover

BAR IS ONE INCH ON OFFICIAL DRAWINGS. 0 1"
IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.

| NO. | DATE | BY | REVISION DESCRIPTION |
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| | | | |

HRGreen
HR GREEN - COLORADO SPRINGS
1975 RESEARCH PARKWAY | SUITE 230
COLORADO SPRINGS CO 80920
PHONE: 719.300.4140
FAX: 713.965.0044

GRANDVIEW RESERVE M.D. -
INTERCEPTOR SEWER
D.R. HORTON
EL PASO COUNTY, CO

D·R·HORTON America's Builder

CONSTRUCTION DOCUMENTS
COVER SHEET

SHEET
G000

# WOODMEN HILLS METROPOLITAN DISTRICT STANDARD NOTES: (SOME NOTES MAY NOT BE APPLICABLE TO PROJECT)

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 CENTERLINE UNLESS OTHERWISE NOTED. ALL ELEVATIONS ARE CENTERLINE UNLESS OTHERWISE NOTED. 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.

4. ALL OVER-LOT GRADING MUST BE COMPLETED TO WITHIN ONE (1) FOOT OF FINAL GRADE PRIOR TO INSTALLATION OF WATER AND WASTEWATER INFRASTRUCTURE.

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 TWELVE INCHES (12") AND FITTINGS SHALL HAVE CATHODIC PROTECTION USING TWO (2) NO. 6 WIRES WITH 17 LB. MAGNESIUM ANODES EVERY 400 FEET AND 9 LB. MAGNESIUM ANODES AT EACH FITTING. ALL DUCTILE IRON PIPE TWELVE INCHES (12") AND GREATER AND FITTINGS SHALL HAVE CATHODIC PROTECTION USING TWO (2) 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 DISTRICT, 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 AGENCIES 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, AND 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 TWENTY-FIVE FEET (25') INTERVALS ALONG CURVES TO ENSURE LOCATION OF PIPELINE 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 DISTRICTS' 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 PRECONSTRUCTION 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 PRECONSTRUCTION MEETING. NO PRECONSTRUCTION MEETING CAN BE SCHEDULED BEFORE 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.

22. 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 TESTED PRIOR TO CCTV INSPECTION.
        - ☐ ALL LINES SHALL BE CCTV INSPECTED AND VIDEO SHALL TO BE SUBMITTED TO THE DISTRICT FOR REVIEW AND APPROVAL.

23. 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.

24. 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.

25. ACCEPTANCE

    a) THE DISTRICT MAY GIVE PRELIMINARY ACCEPTANCE ONCE ALL OF THE TESTS ON ALL THE LINES HAVE BEEN COMPLETED AND A WALK-THROUGH HAS OCCURRED.
    b) A SECOND ACCEPTANCE MAY OCCUR ONCE THE FIRST LIFT OF ASPHALT GOES DOWN AND A SECOND WALK-THROUGH 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).

26. ALL WATER AND SEWER MAINS, INCLUDING SERVICE LINES, SHALL HAVE "AS-BUILT" DRAWINGS PREPARED AND APPROVED PRIOR TO PRELIMINARY ACCEPTANCE BY THE DISTRICT.

27. ALL COMMERCIAL/BUSINESS DEVELOPMENTS SHALL HAVE AN EIGHT INCH (MIN.) 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.

28. AFTER REVIEW AND APPROVAL OF PLANS FOR THE EXTENSION OF LINES, FACILITIES, AND/OR SERVICES, CONSTRUCTION MUST HAVE COMMENCED WITHIN 18 MONTHS FOR RESIDENTIAL SUBDIVISIONS AND 12 MONTHS FOR ANY COMMERCIAL INSTALLATIONS.

29. INSPECTION FEES: CALL THE DISTRICT (719-495-2500) FOR FEE SCHEDULE.

<u>WATER SYSTEM INSTALLATION NOTES</u>

30. ALL WATER AND FORCE MAIN PIPE SHALL BE AWWA C900 PVC, OR APPROVED 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.

31. 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.

32. 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.

33. FIRE HYDRANTS SHALL BE OPEN RIGHT WITH 7/8" X 7/8" SQUARE TAPERED ALONG WITH SERVICE CAPS. LUBRICATION TYPE: GREASE. ACCEPTABLE BRAND IS KENNEDY GUARDIAN (K81D, K81A, AND K81AM). EACH FIRE HYDRANT LOCATION SHALL ALSO BE USED AS TEST STATION.

34. ALL MAIN LINES (PVC & DUCTILE IRON) SHALL BE INSTALLED WITH COATED #12 TRACER WIRE WITH TEST STATIONS AT INTERVALS NO GREATER THAN FIVE HUNDRED FEET (500') (VALVE BOXES CAN BE USED AT INTERSECTIONS AND SERVICE STUBS).

35. 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.

36. IRRIGATION SERVICES SHALL HAVE A STOP-AND-WASTE CURB STOP VALVE INSTALLED ALONG WITH TRACER WIRE EXTENDING BACK TO THE MAIN LINE.

37. 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, AND 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.

<u>WASTEWATER SYSTEM INSTALLATION NOTES</u>

38. SANITARY SEWER LENGTHS ARE MH CENTER – MH CENTER. ALL SANITARY SEWER PIPES SHALL BE SDR 26 OR PS 115 PVC OR APPROVED 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, INLINE PVC PUSH-ON WYES. SINGLE SADDLE TAP ALLOWED ON EXISTING MAINS. MULTIPLE SADDLE TAPS ON EXISTING MAINS MUST BE APPROVED BY THE DISTRICT ON A CASE BY CASE BASIS

39. ALL SANITARY SEWER MANHOLES SHALL BE WRAPPED WITH RU116 - RUBR-NEK JOINT WRAP, OR APPROVED EQUAL, AND COATED.

40. ALL SEWER LINES MUST BE BEDDED WITH SQUEEGEE OR ¾" CRUSHED ROCK.

41. 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, AND 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 THE FIRST LIFT OF ASPHALT IS DOWN AND THE ABOVE REQUIREMENTS ARE MET.

THE ABOVE GUIDELINES ARE SUBJECT TO CHANGE AT ANY TIME.

# UTILITY NOTES

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 WAYS AND WITHIN EASEMENTS WHERE PROPOSED UTILITY IS LOCATED.
3. CONTRACTOR TO MAINTAIN 5.5' MINIMUM COVER ALL OVER WATER MAINS CONSTRUCTED.
4. ALL VALVES SHOWN FOR SCHEMATIC PURPOSES ONLY. NO VALVES SHALL BE INSTALLED IN CURB AND GUTTER OR CROSS PANS.
5. STANDARD WATER SERVICES LOCATIONS TO BE 10' FROM THE DOWNSTREAM PROPERTY LINE AND EXTENDED 10' TO THE UTILITY EASEMENT.
6. STANDARD WASTEWATER SERVICES TO BE IN A COMMON TRENCH WITH STANDARD WATER SERVICES. SHALL BE LOCATION A MINIMUM OF 30" FROM CENTER OF PIPE. SEE WOODMEN HILLS METRO DISTRICT STANDARD SPECIFICATIONS DETAIL W-13.
7. STANDARD 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.
8. CURB STOPS ARE NOT TO BE INSTALLED IN CONCRETE CURB, CROSS PANS, SIDEWALKS, OR DRIVEWAYS.
9. SEE PLANS FOR THE LOCATION OF STANDARD SERVICES ON CORNER LOTS.

# CAUTION - NOTICE TO CONTRACTOR

1. CONTRACTOR IS REQUIRED TO UTILIZE THE UTILITY ONE CALL SERVICE 811 AT LEAST 48 HOURS PRIOR TO EXCAVATING ANYWHERE ON THE PROJECT.
2. 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 CONTRACTORS RESPONSIBILITY TO FIELD VERIFY THE 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.
3. NO CLAIMS FOR ADDITIONAL COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR INTERFERENCE OR DELAY CAUSED BY REPAIRS FOR DAMAGED UTILITIES.
4. 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 POTHOLING OR ALTERNATIVE METHOD. REPORT INFORMATION TO THE ENGINEER PRIOR TO CONSTRUCTION.
5. CONTRACTOR SHALL PROTECT ALL EXISTING SURVEY MONUMENTATION. CONTRACTOR SHALL HAVE LICENSED SURVEYOR REPLACE ANY DAMAGED OR DISTURBED MONUMENTATION AT THEIR COST.
6. CONTRACTOR MUST COORDINATE WORK WITH UTILITY COMPANY AND CITY/WHMD/OWNER PRIOR TO BEGINNING WORK AND IS RESPONSIBLE FOR ALL MATERIALS, LABOR, REPAIRS, ECT. TO COMPLETE WORK AND RESTORE AREA TO SAME STATE PRIOR TO STARTING WORK.
7. CONTRACTOR RESPONSIBLE FOR AS-BUILT DRAWINGS, TESTS, REPORTS, AND/OR ANY OTHER CERTIFICATES OR INFORMATION AS REQUIRED FOR ACCEPTANCE OF WORK FROM CITY, UTILITY DISTRICTS OR ANY OTHER GOVERNING AGENCY.
8. SURVEYOR TO OBTAIN AUTOCAD FILE FROM ENGINEER AND VERIFY ALL HORIZONTAL CONTROL DIMENSIONING PRIOR TO CONSTRUCTION STAKING. SURVEYOR MUST VERIFY ALL BENCHMARK, BASIS OF BEARING AND DATUM INFORMATION TO ENSURE IMPROVEMENTS WILL BE AT THE SAME HORIZONTAL AND VERTICAL LOCATIONS SHOWN ON THE DESIGN CONSTRUCTION DRAWINGS. PRIOR TO CONSTRUCTION STAKING ANY DISCREPANCY MUST BE REPORTED TO OWNER AND ENGINEER PRIOR TO CONTINUATION OF ANY FURTHER STAKING OR CONSTRUCTION WORK.
9. STORM SEWERS, CULVERTS, AND DITCHES: CONTRACTOR SHALL MONITOR THE WEATHER AND MAINTAIN STORM WATER FLOW AT ALL TIMES AND SHALL SCHEDULE REMOVALS SUCH THAT WET WEATHER AND RAIN EVENTS WILL NOT CREATE DAMAGING BACKUPS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FLOW DIVERTING AND/OR BYPASS PUMPING AS NECESSARY TO FACILITATE CONSTRUCTION. THE COST FOR MAINTAINING, DIVERTING, OR PUMP STORM FLOWS SHALL BE INCIDENTAL TO THE PROJECT.
10. CONTRACTOR TO MAINTAIN A MAXIMUM CONSTRUCTION EASEMENT WIDTH OF 24 FEET.

# DESIGN NOTES/SPECIFICATIONS

1. IN THE EVENT OF DISCREPANCIES, THE FOLLOWING IS THE ORDER OF PRECEDENCE FOR SPECIFICATIONS, FOLLOW WHAT IS MOST STRINGENT: HR GREEN OVER WHMD OVER CSU OVER EPC OVER CDOT.
    - 1.1. SPECIFICATIONS PERTAINING TO UTILITIES: WHMD, SUPPLEMENTED BY CSU.
    - 1.2. SPECIFICATIONS PERTAINING TO RIGHT OF WAY AND SURFACING RESTORATION: EPC, SUPPLEMENTED BY CDOT.
2. CONTRACTOR SHALL UTILIZE THE SITE ACCESS AND STAGING AREAS AS IDENTIFIED IN THE DRAWINGS OR OTHERWISE CONTRACTOR SHALL OBTAIN APPROVAL ON OTHER SITES AND ACCESSES.
3. CONTRACTOR SHALL STAY WITHIN THE CONSTRUCTION EASEMENTS AND/OR ROAD RIGHT OF WAY. DAMAGES OUTSIDE OF DESIGNATED AREAS SHALL BE REPAIRED/REMEDIED AT CONTRACTOR'S EXPENSE. ADDITIONAL AGREEMENTS OBTAINED BY THE CONTRACTOR SHALL NOT HOLD THE OWNER/ENGINEER RESPONSIBLE FOR ANY DAMAGES/GRIEVANCES.

4. REMOVALS AND REPLACEMENT
    - 4.1. ALL ITEMS NOTED FOR REMOVAL AND REPLACEMENT SHALL BE REPLACED IN KIND. CONTRACTOR SHALL FIELD VERIFY. CONTRACTOR SHALL COORDINATE AND CONFIRM WITH RESPECTIVE ENTITIES IF EXISTING CONDITIONS WOULD ALLOW FOR SALVAGE AND RESET.
    - 4.2. CONTRACTOR SHALL PROVIDE TEMPORARY FENCING ON EACH PROPERTY THAT NEEDS FENCING TO BE REMOVED AND REPLACED TO INSTALL PROPOSED UTILITIES.
    - 4.3. DAMAGED PAVEMENT FROM CONSTRUCTION ACTIVITIES SHALL BE REMEDIED TO EPC'S APPROVAL AT CONTRACTOR'S EXPENSE.
    - 4.4. ROADWAY REPLACEMENT/PATCHING/CONSTRUCTION SHALL COMPLY TO SPECIFICATIONS OF EPC, CDOT, OR RESPECTIVE AGENCY WITH JURISDICTION OVER THE ROAD.
    - 4.5. PAVEMENT/ROADWAY TYPICAL SECTIONS FOR RESTORATION - CONTRACTOR SHALL FIELD VERIFY, IF EXISTING SECTION DIFFERS FROM BELOW, MATCH EXISTING.
        - 4.1.1. STAPLETON RD FROM JUDGE ORR TO HWY 24: 6.5" HMA (IN MULTIPLE LIFTS NO THICKER THAN 3") OVER 12" THICK CLASS 6 BASE COURSE; MIN. 2% CROSS SLOPE FROM CROWN; 4" TOP SOIL ON SIDE SLOPES
        - 4.1.2. ROCK ISLAND TRAIL: 4" LIMESTONE CRUSHER FINES SURFACING OVER PREPARED SUBGRADE
        - 4.1.3. OTHER CROSSINGS: MATCH EXISTING SECTION

5. PERMITS
    - 5.1. OWNER IS RESPONSIBLE FOR WETLAND/NATION WIDE PERMIT, ESQCP, APPROVAL FROM CDPHE, AND OBTAINING EASEMENTS
    - 5.2. ALL PERMITS REQUIRED FOR CONSTRUCTION, NOT PROVIDED, SHALL BE OBTAINED BY THE CONTRACTOR. CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARATION, SUBMITTAL, FEES, AND ALL OTHER ITEMS ASSOCIATED WITH PERMITTING. THE FOLLOWING ANTICIPATED PERMIT LIST IS NOT ALL INCLUSIVE:
        - 5.2.1. NPDES AND DEWATERING PERMITS
        - 5.2.2. CDOT UTILITY CROSSING AND ROW USE PERMITS
        - 5.2.3. EPC ROW USE AND CONSTRUCTION PERMITS
        - 5.2.4. FLOODPLAIN DEVELOPMENT PERMIT

6. TRAFFIC CONTROL
    - 6.1. CONTRACTOR SHALL BE RESPONSIBLE FOR TRAFFIC CONTROL PLAN, COORDINATION WITH ALL IMPACTED PARTIES (CDOT, EPC, ADJACENT LANDOWNERS, ETC) MODIFICATIONS, AND MAINTENANCE. MAINTAIN ONE LANE OF TRAFFIC AT ALL TIMES, WHERE POSSIBLE.
    - 6.2. CONTRACTOR SHALL CONTACT EPC PARKS 2 WEEKS BEFORE CONSTRUCTION BEGINS TO ALLOW PUBLIC NOTIFICATION OF ROCK ISLAND TRAIL CLOSURE. CONTRACTOR SHALL COORDINATE TRAIL CLOSURE DURATION AND PROCESS WITH ALL ENTITIES INVOLVED/IMPACTED.
    - 6.3. CONTRACTOR SHALL COORDINATE MAILBOXES/DELIVERIES WITH THE LOCAL DELIVERIES SERVICES DURING CONSTRICTION ACTIVITIES DISTURBANCE OF MAILBOXES AND ROAD ACCESSES.

7. AS-BUILTS
    - 7.1. CONTRACTOR SHALL PROVIDE A THIRD PARTY INSPECTOR TO MAP IN POINTMAN THE ALIGNMENT AND DEPTH OF THE PIPE INSTALLED ACROSS THE ENTIRE WIDTH OF THE RIGHT-OF-WAY OF HWY 24.
    - 7.2. CONTRACTOR SHALL KEEP RECORD OF CHANGES TO DESIGN AND PROVIDE AS-BUILT DRAWING SET/CAD DRAWINGS TO OWNER.

8. GRAVITY SEWER
    - 8.1. FOLLOW REQUIREMENTS PER WHMD STANDARD SPECIFICATIONS, UNLESS OTHERWISE NOTED IN DRAWINGS.
    - 8.2. ALL PIPES FOR THE PROJECT SHALL BE AS SPECIFIED IN DRAWINGS.
    - 8.3. INSTALL SEWER BEDDING PER "TYPICAL TRENCH DETAIL" ON SHEET C701.
    - 8.4. INSTALL CASING PIPE PER "CASING PIPE DETAIL" ON SHEET C701.
    - 8.5. METER MANHOLE REQUIREMENTS INCLUDES, BUT ARE NOT LIMITED TO ITEMS BELOW:
        - 8.5.1. FURNISH AND INSTALL NON-CONTACT RADAR FLOW METER, RAVEN-EYE2, BY FLOW-TRONIC AND FLOW SENSOR, IFQ MONITOR, BY FLOW-TRONIC.
        - 8.5.2. INSTALL PER MANUFACTURERS' RECOMMENDATIONS.
        - 8.5.3. MOUNT MONITOR NEXT TO MANHOLE ENCLOSED IN A FREE-STANDING NEMA 4X CABINET.
        - 8.5.4. CONNECT TO WHMD EXISTING SCADA SYSTEM.
        - 8.5.5. CONNECT TO POWER SOURCE.
        - 8.5.6. ALL MATERIALS, ACCESSORIES, LABOR, AND EQUIPMENT REQUIRED TO PROVIDE A FULLY FUNCTIONING AND CONNECTED TO SYSTEM FLOW MEASUREMENT SHALL BE PROVIDED.
    - 8.6. TO PREVENT BUOYANCY, EACH MANHOLE LIP WIDTH IS SPECIFY BELOW AND ALSO REFER TO STANDARD DETAIL WW-2.

| MH # | Diameter (in) | MH Lip (in) |
|---|---|---|
| MH-101 | 60 | 3 |
| MH-102 | 60 | 4 |
| MH-103 | 60 | 4 |
| MH-104 | 60 | 4 |
| MH-105 | 60 | 4 |
| MH-106 | 60 | 3 |
| MH-107 | 60 | 3 |
| MH-108 | 60 | 3 |
| MH-109 | 60 | 3 |
| MH-110 | 60 | 3 |
| MH-111 | 60 | 3 |
| MH-112 | 60 | 3 |
| MH-113 | 60 | 3 |
| MH-114 | 60 | 3 |
| MH-115 | 60 | 3 |
| MH-116 | 60 | 3 |
| MH-117 | 60 | 3 |
| MH-118 | 60 | 3 |
| MH-120 | 60 | 3 |
| MH-121 | 60 | 3 |
| MH-122 | 72 | 3 |
| MH-123 | 72 | 3 |
| MH-124 | 72 | 3 |
| MH-126 | 72 | 3 |
| MH-127 | 72 | 4 |
| MH-128 | 72 | 4 |

PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

DRAWN BY: JMM JOB DATE: 7/17/2024
APPROVED: GP JOB NUMBER: 201662.07
CAD DATE: 1/7/2025
CAD FILE: \\hrgreen.com\HRG\Data\2020\201662.07\CAD\Dwgs\C\Gravity_Line\Gr_Cover

BAR IS ONE INCH ON OFFICIAL DRAWINGS. 0 1"
IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.

| NO. | DATE | BY | REVISION DESCRIPTION |
|---|---|---|---|
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HRGreen
HR GREEN - COLORADO SPRINGS
1975 RESEARCH PARKWAY | SUITE 230
COLORADO SPRINGS CO 80920
PHONE: 719.300.4140
FAX: 719.965.0044

GRANDVIEW RESERVE M.D. - INTERCEPTOR SEWER
D.R. HORTON
EL PASO COUNTY, CO

D·R·HORTON America's Builder

CONSTRUCTION DOCUMENTS
GENERAL NOTES

SHEET
G001

# LEGEND

| | EXISTING | PROPOSED |
|---|---|---|
| MATCH LINE | | |
| PHASE LINE | | |
| SECTION LINE | | |
| PROPERTY LINE | | |
| EASEMENT LINE | | |
| ASSUMED EASEMENT | | |
| RIGHT OF WAY | | |
| CENTERLINE | | |
| CHAIN LINK FENCE | | |
| WOODEN FENCE | | |
| ROD IRON FENCE | | |
| GUARDRAIL | | |
| CABLE TV | TV | TV |
| U.G. ELECTRIC | UE | UE |
| OVERHEAD ELECTRIC | OE | OE |
| FIBER OPTIC | FO | FO |
| GAS MAIN | GAS GAS | GAS GAS |
| SANITARY SEWER | SS | |
| STORM DRAIN | | |
| TELEPHONE | UT | UT |
| WATER MAIN | W | W |
| SWALE | | |
| TRAIL | | |
| CURB & GUTTER | | |
| DRAINAGE BASIN | | |
| INDEX CONTOUR | | |
| INTER. CONTOUR | | |
| 100-YR FLOODPLAIN | | |
| FLOODWAY | | |
| EDGE OF WETLANDS | | |

## DRAINAGE

| | EXISTING | PROPOSED |
|---|---|---|
| DRAINAGE BASIN | | PROPOSED |
| BASIN TAG | | I.D. AREA |
| DESIGN POINT | | |
| ASPHALT | | |
| GRAVEL | | |
| 100 YR FLOOD | | |
| PENDING 100 YR FLOOD | | |
| WETLANDS | | |

## STORM SEWER

| | EXISTING | PROPOSED |
|---|---|---|
| MANHOLE | ST | D |
| STORM INLET | | |
| FLARED END SECTION | | |
| RIPRAP | | |

## SANITARY SEWER

| | EXISTING | PROPOSED |
|---|---|---|
| CLEAN OUT | | |
| MANHOLE | S | S |
| PLUG | | |

## WATER

| | EXISTING | PROPOSED |
|---|---|---|
| FIRE HYDRANT | | |
| FIRE DEPT. CONNECTION | FDC | |
| GATE VALVE | | |
| MANHOLE | W | W |
| METER | WM | WM |
| TEE | | |
| REDUCER | | |

## DRY UTILITIES

| | |
|---|---|
| ELECTRIC METER | EM |
| ELECTRIC PEDESTAL | E |
| ELECTRICAL CABINET | E |
| ELECTRIC VAULT | EV |
| FIBER OPTIC PULL BOX | F |
| FIBER OPTIC MANHOLE | FO |
| FIBER OPTIC PEDESTAL | FO |
| FIBER OPTIC SIGN | FO |
| FIBER OPTIC VAULT | FV |
| GAS METER | GM |
| GAS SIGN | GP |
| GAS VAULT | GV |
| TELEPHONE CABINET | T |
| TELEPHONE MANHOLE | TR |
| TELEPHONE SIGNAL/MAST | T |
| TELEPHONE SIGN | T |
| TELEPHONE PEDESTAL | T |
| TRANSFORMER | |
| LIGHT POLE | |
| FIBER OPTIC VAULT | FV |

## MISCELLANEOUS

| | |
|---|---|
| SIGN | |
| BOLLLARD | |
| ACCESSIBLE PARKING | |

# DESIGN NOTES/SPECIFICATIONS (CONTINUED)

9. CORROSION PROTECTIVE LINING SPECIFICATIONS FOR MANHOLES - EPOXY LINER

QUALITY ASSURANCE

A.1. ALL COATINGS SHALL CONFORM TO OSHA REQUIREMENTS FOR ALLOWABLE EXPOSURE TO LEAD AND OTHER HAZARDOUS SUBSTANCES.

A.2. MANUFACTURER SHALL BE A COMPANY THAT SPECIALIZES IN PRODUCING HIGH QUALITY INDUSTRIAL COATING MATERIALS.

A.3. APPLICATOR: COMPANY THAT HAS SUCCESSFULLY COMPLETED COATING SYSTEMS APPLICATIONS SIMILAR IN MATERIAL AND EXTENT TO THOSE INDICATED. APPLICATOR SHALL BE ABLE TO SUPPLY SUITABLE EQUIPMENT TO PREPARE THE SURFACES AND APPLY THE PROTECTIVE COATING SYSTEM SPECIFIED WITHIN THIS ARTICLE.

A.4. SINGLE SOURCE RESPONSIBILITY: PROVIDE COATING MATERIAL AND THINNERS PRODUCED BY THE SAME MANUFACTURER FOR EACH SYSTEM ON ALL SURFACES OF THE MANHOLE BENCH.

A.5. FIELD PAINTING PRE-APPLICATION MEETING: HOLD A PRE-APPLICATION MEETING BEFORE THE START OF FIELD SURFACE PREPARATION AND COATING APPLICATION. REQUIRE ATTENDANCE OF PARTIES DIRECTLY AFFECTING WORK OF THIS SPECIAL PROVISION, INCLUDING THE ENGINEER, APPLICATOR, INSPECTOR, AND COATING MANUFACTURER'S REPRESENTATIVE. REVIEW THE SPECIFICATIONS TO INSURE EACH PARTY'S RESPONSIBILITIES ARE UNDERSTOOD. SUBJECTS TO BE DISCUSSED ARE: ENVIRONMENTAL REQUIREMENTS, PROTECTION OF SURFACES NOT SCHEDULED TO BE COATED, SURFACE PREPARATION, APPLICATION, REPAIR, FIELD QUALITY CONTROL, CLEANING, PROTECTION OF COATING SYSTEMS, COORDINATION WITH OTHER WORK AND ANY OTHER AREAS OF CONCERN EXPRESSED AT THE MEETING.

A.6. DUST AND CONTAMINANTS: SCHEDULE COATING WORK TO AVOID EXCESSIVE DUST AND AIRBORNE CONTAMINANTS. PROTECT WORK AREAS FROM EXCESSIVE DUST AND AIRBORNE CONTAMINANTS DURING COATING APPLICATION AND CURING.

A. WARRANTY: FULL WARRANTY AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR TWO YEARS AFTER SUBSTANTIAL COMPLETION, INCLUDING ALL PARTS, LABOR, AND EXPENSES

B. PRODUCTS

B.1. MANUFACTURERS: ITW POLYMER COATINGS, MAINSTAY, RAVEN, OR SAUEREISEN

B.2. GENERAL:

B.2.1. APPLICATION METHOD SHALL BE DESIGNED AND INSTALLED USING TECHNIQUE RECOMMENDED BY THE MANUFACTURER.

B.2.2. COLORS SHALL BE AS SELECTED BY ENGINEER

B.2.3. UNLESS OTHERWISE NOTED, ITW POLYMERS COATINGS PRODUCTS ARE IDENTIFIED IN THIS EPOXY LINER SYSTEM TO ESTABLISH QUALITY AND TYPE DESIRED.

B.2.4. SYSTEM THICKNESS OR COVERAGE RATE IS RECOMMENDED BY ITW POLYMERS COATINGS. IF OTHER MANUFACTURERS ARE USED, MANUFACTURER REQUIREMENTS SHALL BE FOLLOWED, BUT IN NO CASE SHALL THICKNESS OR COVERAGE RATE BE LESS THAN ITW POLYMERS COATINGS.

B.3. PROPERTIES-MEET THE FOLLOWING:

| PROPERTY | TEST METHOD | PERFORMANCE |
|---|---|---|
| COMPRESSIVE STRENGTH | ASTM C579 | 12,870 PSI |
| TENSILE STRENGTH | ASTM D638 | 6,690 PSI |
| FLEXURAL STRENGTH | ASTM D580 | 12,443 PSI |
| BOND STRENGTH | ASTM D4541 | 450 PSI |

B.3.1. VOLUME OF SOLIDS: 100%

B.4. SURFACE PREPARATION:

B.4.1. CONCRETE SURFACES SHALL BE ABRASIVE BLASTED IN ACCORDANCE WITH SSPC-SP13 TO PRODUCE A CLEAN AND ROUGHENED SURFACE FINISH. ALTERNATIVE SURFACE PREPARATION METHODS INCLUDE WET GRIT BLASTING, AND HIGH OR ULTRA-HIGH PRESSURE WATER JETTING.

B.4.2. ALL LOOSE SURFACE CONTAMINATION SHALL BE COMPLETELY REMOVED BY VACUUMING OR HIGH PRESSURE WATER WASHING. THE SUBSTRATE MUST BE VISIBLY DRY BEFORE PROCEEDING. ANY SPECIFIC AREA THAT IS NOT VISIBLY DRY OR IS EXPERIENCING WATER PENETRATION (I.E., GROUND WATER SEEPAGE) SHALL BE SURFACE-DRIED UTILIZING FORCED AIR HEATING OR DEHUMIDIFICATION UNITS. MOISTURE VAPOR TRANSMISSION SHOULD BE 3 POUNDS OR LESS PER 1000 SQUARE FEET OVER A 24 HOUR TIME PERIOD, AS CONFIRMED THROUGH A CALCIUM CHLORIDE TEST PER ASTM E-1907. QUANTITATIVE RELATIVE HUMIDITY (RH) TESTING, ASTM F-2170, SHOULD CONFIRM CONCRETE RH RESULTS BELOW 75%.

B.4.3. PROVIDE A SURFACE PROFILE OF ICRI CSP-3 TO ICRI CSP-5.

B.5. SYSTEM:

B.5.1. CONCRETE RESURFACING: ROUGH CONCRETE, SPALLED CONCRETE OR CONCRETE SURFACES WITH VOIDS AND/OR BUG HOLES MUST BE RESURFACED IN ACCORDANCE WITH MANUFACTURE'S RECOMMENDATION.

B.5.2. PRIMER COAT: 1 COAT/125 TO 175 SQUARE FEET PER GALLON (SFPG) "POLYSPEC MMP PRIMER, TRANSPARENT AMBER" BY ITW POLYMERS COATINGS.

B.5.3. INTERMEDIATE COAT: 1 COAT/40.0 TO 60.0 DRY FILM THICKNESS (MILS/COAT) "TUFFREZ 240, GRAY" BY ITW POLYMERS COATINGS.

B.5.4. TOP COAT: 1 COAT/40.0 TO 60.0 DRY FILM THICKNESS (MILS/COAT) "TUFFREZ 240, GRAY" BY ITW POLYMERS COATINGS.

B.6. THINNING AND MIXING:

B.6.1. EPOXY LINER MATERIALS SHALL BE MIXED WITH A POWER MIXER OF SUFFICIENT SIZE TO ENSURE COMPLETE DISPERSION OF PIGMENTS AND BLENDING OF REACTIVE COMPONENTS.

B.6.2. EPOXY LINER MATERIALS SHALL NOT BE THINNED UNLESS SPECIFICALLY ALLOWED BY THE MANUFACTURER'S RECOMMENDATIONS.

B.7. EPOXY INSTALLATION

B.7.1. EXAMINATION:

B.7.1.1. EXAMINE AREAS AND CONDITIONS UNDER WHICH THE EPOXY LINER SYSTEM IS TO BE APPLIED. NOTIFY CONTRACTOR AND ENGINEER OF AREAS OR CONDITIONS THAT ARE NOT ACCEPTABLE. DO NOT BEGIN SURFACE PREPARATION OR APPLICATION UNTIL UNACCEPTABLE AREAS OR CONDITIONS HAVE BEEN CORRECTED.

B.7.1.2. PROTECT SURROUNDING AREAS AND SURFACES NOT SCHEDULED TO BE COATED FROM DAMAGE DURING SURFACE PREPARATION AND APPLICATION OF EPOXY LINER SYSTEM. IMMEDIATELY REMOVE EPOXY LINER SYSTEM THAT FALL ON SURROUNDING AREAS AND SURFACES NOT SCHEDULED TO BE COATED.

B.7.1.3. ALL EPOXY LINER MATERIALS SHALL BE MIXED AND APPLIED AT TEMPERATURES IN ACCORDANCE WITH THESE SPECIFICATIONS AND THE MANUFACTURER'S RECOMMENDATION.

B.7.1.3.1. EPOXY LINER MATERIALS SHALL NOT BE APPLIED IN INCLEMENT WEATHER CONDITIONS.

B.7.1.3.2. AMBIENT TEMPERATURES MUST BE BETWEEN 40°F AND 85°F DURING APPLICATION OF EPOXY LINER MATERIALS. RELATIVE HUMIDITY MUST BE BELOW 85%.

B.7.1.3.3. THE MINIMUM SUBSTRATE TEMPERATURE AT THE TIME OF APPLICATION SHALL BE 45°F. THE MAXIMUM SUBSTRATE TEMPERATURE AT THE TIME OF APPLICATION SHALL BE 100°F.

B.7.1.3.4. AT THE TIME OF APPLICATION, THE SUBSTRATE TEMPERATURE MUST BE AT LEAST 5°F ABOVE THE DEW POINT.

B.7.1.3.5. DURING APPLICATION, THE SUBSTRATE TEMPERATURE MUST BE DECLINING.

B.7.1.4. ADEQUATE LIGHTING SHALL BE PROVIDED TO SUFFICIENTLY LIGHT UP ALL AREAS TO BE WORKED ON WITHOUT INCLUSION OF SHADOW AREAS. ADEQUATE LIGHTING SHALL BE CONSIDERED A MINIMUM OF 20 FOOT CANDLES IN ALL AREAS IN WHICH WORK OR INSPECTION PROCESSES ARE OCCURRING.

B.7.1.5. EPOXY LINER MATERIALS SHALL NOT BE APPLIED WINDY CONDITIONS. CONTRACTOR SHALL ENSURE WINDBLOWN MATTER IS PREVENTED FROM CONTAMINATING FRESHLY COATED SURFACES.

B.7.1.6. KEEP CONTAINERS CLOSED WHEN NOT IN USE TO AVOID CONTAMINATION.

B.7.1.7. DO NOT USE MIXED EPOXY LINER MATERIALS BEYOND POT LIFE LIMITS.

B.7.1.8. APPLY MULTIPLE COATS WITHIN MANUFACTURER'S RECOMMENDED RECOAT TIMEFRAME.

B.7.1.9. USE APPLICATION EQUIPMENT, TOOLS, PRESSURE SETTINGS, AND TECHNIQUES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

B.7.1.10. UNIFORMLY APPLY EPOXY LINER MATERIALS AT SPREADING RATE REQUIRED TO ACHIEVE SPECIFIED DFT.

B.7.1.11. APPLY EPOXY LINER MATERIALS TO BE FREE OF FILM DEFECTS THAT WOULD ADVERSELY AFFECT PERFORMANCE OF THE LINER SYSTEM.

B.7.2. REPAIRS:

B.7.2.1. DAMAGED MATERIALS: REPAIR OR REPLACE DAMAGED MATERIALS AND SURFACES NOT SCHEDULED TO BE COATED.

B.7.2.2. DAMAGED LINER SYSTEM: REPAIR DAMAGED EPOXY LINER MATERIALS.

B.7.2.2.1. REPAIRS SHALL BE MADE WITH THE EPOXY LINER SYSTEM, SURFACE PREPARATION, AND COAT THICKNESS SPECIFIED IN ARTICLE 120141A.02, A.

B.7.2.2.2. COMPLETE REPLACEMENT OF THE EPOXY LINER MAY BE REQUIRED BY ENGINEER IF THE DAMAGED OR UNSATISFACTORY AREA EXCEEDS 2% OF THE TOTAL COATED SURFACE AREA.

B.7.2.2.3. PRIOR TO ANY REPAIR WORK, THE SURFACE SHALL BE CLEANED IN ACCORDANCE WITH SSPC-SP 1.

B.7.2.2.4. INTACT AREAS AROUND THE DAMAGED AREA SHALL BE FEATHERED BY EITHER HAND SANDING, POWER TOOL CLEANING, OR ABRASIVE BLAST CLEANING PRIOR TO THE APPLICATION OF THE EPOXY LINER.

B.7.2.3. LINER SYSTEM DEFECTS: COMPLETELY REPLACE THE DEFECTIVE EPOXY LINER WITH THE EPOXY LINER SYSTEM, SURFACE PREPARATION, AND COAT THICKNESS SPECIFIED IN ARTICLE 120141A.02, A.

B.8. TESTING EQUIPMENT AND PROCEDURES

B.8.1. PROVIDE ON THE PROJECT SITE, TESTING EQUIPMENT NECESSARY TO TEST THE FOLLOWING. EQUIPMENT SHALL BE IN CALIBRATION AND PROPER WORKING ORDER. EQUIPMENT SHALL BE USED IN ACCORDANCE WITH THE MANUFACTURERS' INSTRUCTIONS OR AS DIRECTED BY THE ENGINEER. THE ENGINEER SHALL BE NOTIFIED OF TIME OF TESTING SO THAT HE MIGHT BE PRESENT TO WITNESS TESTING. KEEP A DAILY LOG OF ENVIRONMENTAL CONDITIONS, WORK SCHEDULE, AND ANY OTHER PERTINENT INFORMATION. THE LOG SHALL BE TURNED OVER TO THE ENGINEER AT THE END OF THE PROJECT TO BE INCLUDED IN THE PERMANENT RECORD. PROVIDE QUALIFIED PERSONNEL TO PERFORM THE FOLLOWING TESTING:

B.8.1.1. MONITORING AMBIENT TEMPERATURE.

B.8.1.2. DETECTING OIL OR WATER IN COMPRESSED AIR.

B.8.1.3. DETERMINING DEGREE OF CLEANLINESS FOR BLAST CLEANED SURFACES.

B.8.1.4. MEASURING NON-VISIBLE CONTAMINANTS ON CONCRETE SURFACES.

B.8.1.5. MEASURING CONCRETE SURFACE PROFILE.

B.8.1.6. MONITORING THE MIXING AND THINNING OF EPOXY LINER MATERIALS.

B.8.1.7. MEASURING WET FILM THICKNESS OF EPOXY LINER MATERIALS.

B.8.1.8. MEASURING EPOXY LINER MATERIAL ADHESION USING PORTABLE ADHESION TESTERS (DESTRUCTIVE TEST TO BE PERFORMED ONLY WHEN REQUIRED).

B.8.1.9. DISCONTINUITY OR HOLIDAY TESTING OF EPOXY LINER MATERIALS.

B.8.1.10. TESTING FOR CURE OF EPOXY LINER MATERIALS

PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

DRAWN BY: JMM JOB DATE: 7/17/2024
APPROVED: GP JOB NUMBER: 201662.07
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BAR IS ONE INCH ON OFFICIAL DRAWINGS.
0 1"
IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.

| NO. | DATE | BY | REVISION DESCRIPTION |
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HRGreen
HR GREEN - COLORADO SPRINGS
1975 RESEARCH PARKWAY | SUITE 230
COLORADO SPRINGS CO 80920
PHONE: 719.300.4140
FAX: 713.965.0044

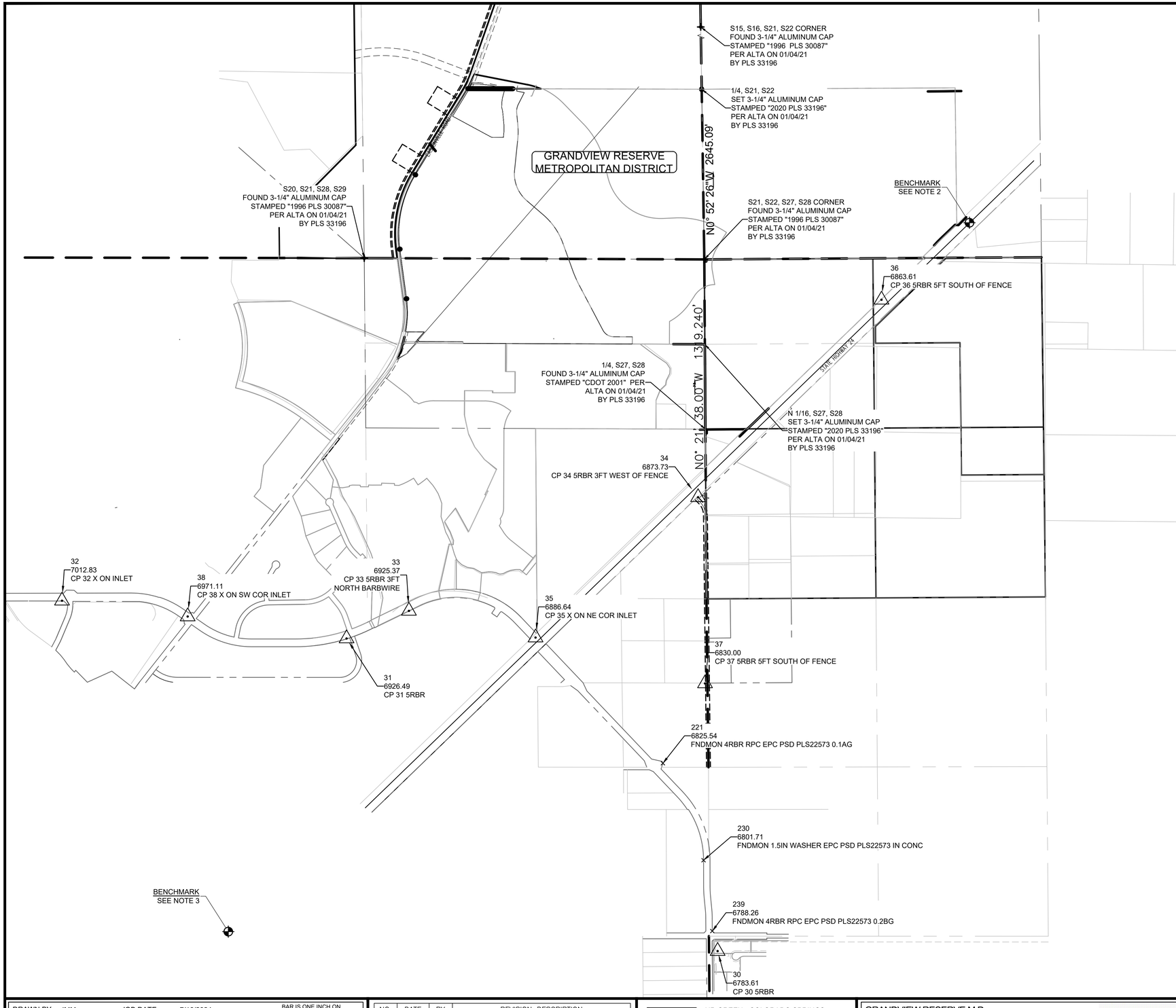
GRANDVIEW RESERVE M.D. -
INTERCEPTOR SEWER
D.R. HORTON
EL PASO COUNTY, CO

D·R·HORTON America's Builder

CONSTRUCTION DOCUMENTS

LEGEND

SHEET
G002





KEYMAP

PROJECT LEGEND:

- PROPERTY LINE
- SECTION LINE
- BENCHMARK
- CONTROL POINTS
- FOUND MONUMENTS

NOTES:

1. BASIS OF BEARINGS: THE EAST LINE OF SECTION 21, BEING MONUMENTED AT THE SOUTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, AND BEING MONUMENTED AT THE NORTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, BEING ASSUMED TO BEAR NORTH 00 DEGREES 52 MINUTES 26 SECONDS WEST, A DISTANCE OF 5290.17 FEET.
2. BENCHMARK:
   DESIGNATION = F 24
   PID = JK0240
   DESCRIPTION = DISK ON TOP OF CONCRETE MONUMENT
   CONTROL POINT COORDINATE SYSTEM: NAVD88
   NORTHING: 1421049.58
   EASTING: 3273631.70
   ELEVATION: 6866.33
3. BENCHMARK:
   DESIGNATION = E 24
   PID = JK0239
   DESCRIPTION = DISK ON TOP OF CONCRETE MONUMENT
   CONTROL POINT COORDINATE SYSTEM: NAVD88
   NORTHING: 1410031.47
   EASTING: 3262112.16
   ELEVATION: 6902.18

PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

811 UNCC CALL BEFORE YOU DIG 811 OR 1-800-922-1987 Utility Notification Center of Colorado

NORTH

0 800
400

DRAWN BY: JMM | JOB DATE: 7/16/2024
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GRANDVIEW RESERVE M.D. - INTERCEPTOR SEWER
D.R. HORTON
EL PASO COUNTY, CO

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CONSTRUCTION DOCUMENTS

SURVEY CONTROL PLAN

SHEET
G003

# GRANDVIEW

## PROJECT COORDINATES

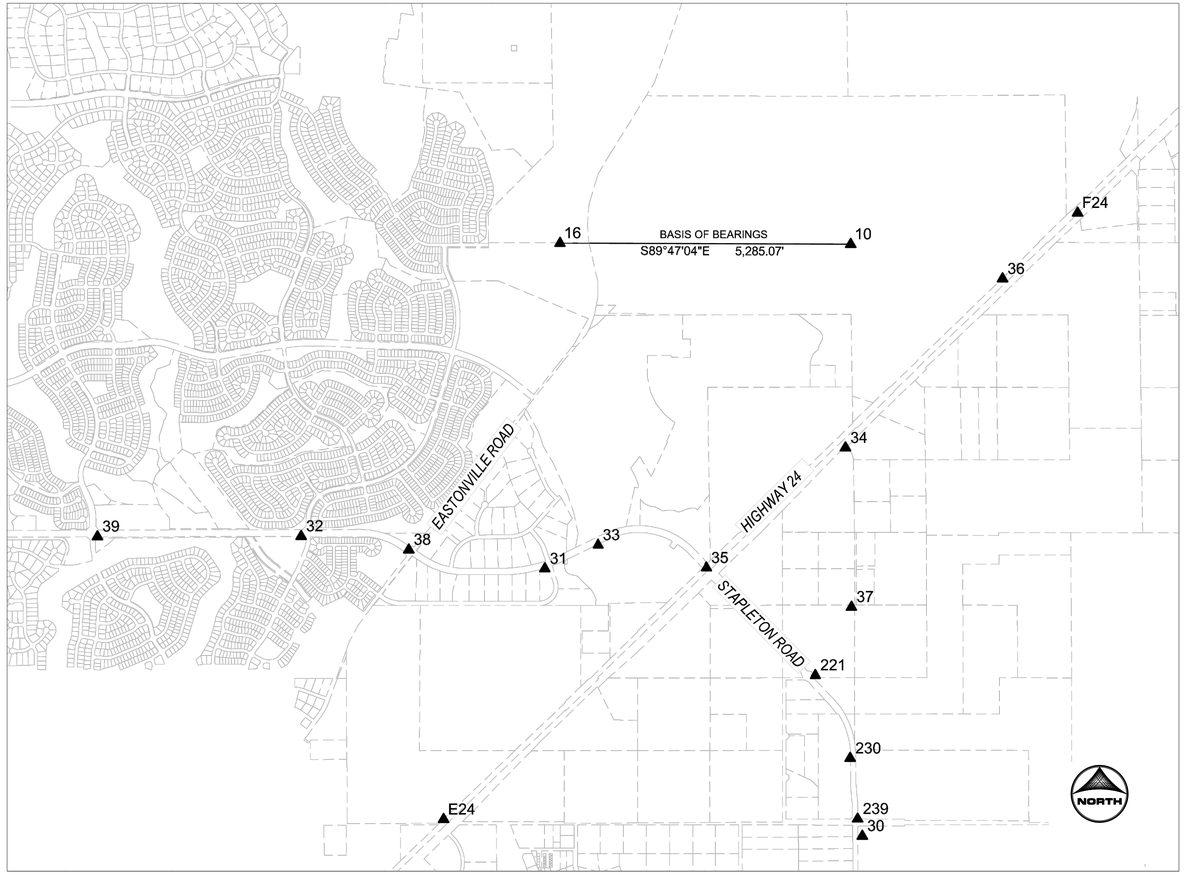
**PROJECT COORDINATE NOTES:**

THE PROJECT COORDINATES FOR GRANDVIEW WERE ESTABLISHED BY AN ENGINEERING AND SURVEYING CONSULTANT PRIOR TO EDWARD-JAMES SURVEYING'S (EJSI) INVOLVEMENT IN THE PROJECT. IN LATE 2005, EJSI WAS PROVIDED WITH PROJECT COORDINATES FOR SEVERAL SECTION CORNERS THROUGHOUT THE PROJECT AREA. EJSI CALIBRATED TO THE PROJECT COORDINATE SYSTEM AND BEGAN WORKING ON SEVERAL PROJECTS IN THE AREA. RECENTLY, IT HAS BEEN REQUESTED THAT A CORRELATION BETWEEN THE PROJECT COORDINATES AND STATE PLANE CENTRAL BE ESTABLISHED. IN ORDER TO ACCOMPLISH THIS, EJSI SURVEYED THE LOCATION OF TWO NGS MONUMENTS (E24 AND F24) USING THE PROJECT CALIBRATION. BELOW ARE THE STEPS REQUIRED TO CONVERT PROJECT COORDINATE TO STATE PLANE CENTRAL COORDINATES.

TO GET FROM STATE PLANE COORDINATES TO PROJECT COORDINATES, COMPLETE THE FOLLOWING STEPS:

1. SCALE THE STATE PLANE COORDINATES BY 1.0003921722 USING THE STATE PLANE COORDINATE FOR E24 AS THE POINT OF ORIGIN.
2. TRANSLATE THE SCALED COORDINATE FROM THE STATE PLANE COORDINATE FOR E24 TO THE PROJECT COORDINATE FOR E24.
3. ROTATE THE SCALED AND TRANSLATED COORDINATE HOLDING THE PROJECT COORDINATE FOR E24 AND ROTATING CLOCKWISE BY 0°00'26".

| | CO STATE PLANE CENTRAL COORDINATES | | GRANDVIEW PROJECT COORDINATES | | NAVD 88 | | | |
|---|---|---|---|---|---|---|---|---|
| POINT NO. | NORTHING | EASTING | NORTHING | EASTING | ELEVATION | DESCRIPTION | LATITUDE | LONGITUDE |
| E 24 | 1409946.25 | 3261914.04 | 1410031.47 | 3262112.16 | 6,902.18 | NGS E 24 (PID JK0239) - 3-1/4" BRASS DISK IN CONCRETE MONUMENT | N38°57'19.11389" | W104°34'44.20466" |
| F 24 | 1420961.49 | 3273427.68 | 1421049.58 | 3273631.70 | 6,866.33 | NGS F 24 (PID JK0240) - 3-1/4" BRASS DISK IN CONCRETE MONUMENT | N38°59'06.81100" | W104°32'16.97772" |
| 10 | 1420391.37 | 3269307.86 | 1420479.76 | 3269510.19 | 6,920.40 | NORTHEAST CORNER SECTION 28 (3-1/4" AL CAP "PS INC LS 30087 1996") | | |
| 16 | 1420410.59 | 3264024.90 | 1420499.65 | 3264225.16 | 7,011.44 | NORTHWEST CORNER SECTION 28 (3-1/4" AL CAP "PS INC LS 30087 1996") | | |
| 30 | 1409644.75 | 3269516.52 | 1409728.89 | 3269717.58 | 6,783.61 | CP 30 NO. 5 REBAR | | |
| 31 | 1414500.64 | 3263750.88 | 1414587.41 | 3263950.29 | 6,926.49 | CP 31 NO. 5 REBAR | | |
| 32 | 1415086.52 | 3259329.87 | 1415174.09 | 3259527.63 | 7,012.83 | CP 32 "X" ON INLET | | |
| 33 | 1414929.81 | 3264719.53 | 1415016.64 | 3264919.38 | 6,925.37 | CP 33 NO. 5 REBAR | | |
| 34 | 1416695.18 | 3269211.50 | 1416782.13 | 3269413.33 | 6,873.73 | CP 34 NO. 5 REBAR | | |
| 35 | 1414515.45 | 3266686.82 | 1414601.86 | 3266887.39 | 6,886.64 | CP 35 "X" ON NE CORNER OF INLET | | |
| 36 | 1419764.51 | 3272060.60 | 1419852.30 | 3272263.94 | 6,863.61 | CP 36 NO. 5 REBAR | | |
| 37 | 1413802.62 | 3269320.13 | 1413888.42 | 3269521.64 | 6,830.00 | CP 37 NO. 5 REBAR | | |
| 38 | 1414841.57 | 3261282.31 | 1414928.79 | 3261480.80 | 6,971.11 | CP 38 "X" ON SOUTHWEST CORNER INLET | | |
| 39 | 1415081.32 | 3255628.10 | 1415169.35 | 3255824.40 | 7,059.26 | CP 39 "X" ON TBC | | |
| 221 | 1412563.13 | 3268665.62 | 1412648.52 | 3268866.71 | 6,825.54 | NO. 4 REBAR AND RED PLASTIC CAP "EPC PSD PLS22573" | | |
| 230 | 1411056.50 | 3269297.63 | 1411141.23 | 3269498.78 | 6,801.71 | NAIL AND 1-1/2" WASHER IN CONCRETE "EPC PSD PLS 22573" | | |
| 239 | 1409955.40 | 3269433.32 | 1410039.67 | 3269634.39 | 6,788.26 | NO. 4 REBAR AND RED PLASTIC CAP "EPC PSD PLS 22573" | | |

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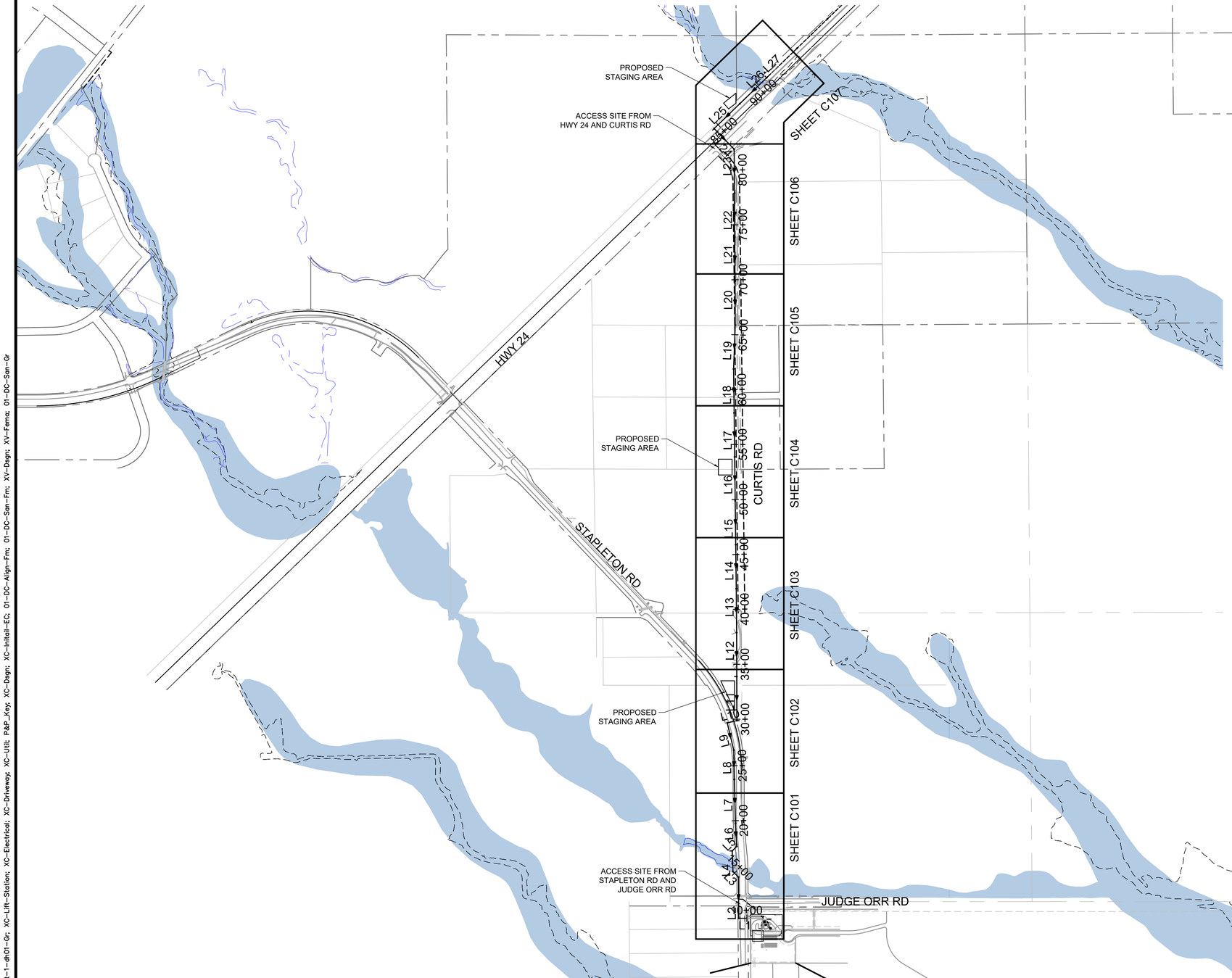
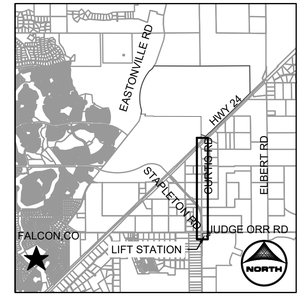
CONSTRUCTION DOCUMENTS
SURVEY COORDINATES

SHEET
G004




KEYMAP

INTERCEPTOR SEWER ALIGNMENT DATA TABLE

| NUMBER | LENGTH | LINE/CHORD DIRECTION | START STATION | END STATION | START NORTHING | START EASTING | END NORTHING | END EASTING |
|---|---|---|---|---|---|---|---|---|
| L1 | 73.752 | N90° 00' 00.00"W | 10+00.00 | 10+73.75 | 1409809.20 | 3269623.37 | 1409809.20 | 3269549.62 |
| L2 | 374.754 | N0° 16' 31.75"W | 10+73.75 | 14+48.51 | 1409809.20 | 3269549.62 | 1410183.95 | 3269547.82 |
| L3 | 71.837 | N45° 00' 00.00"W | 14+48.51 | 15+20.34 | 1410183.95 | 3269547.82 | 1410234.75 | 3269497.02 |
| L4 | 187.347 | N2° 08' 00.43"W | 15+20.34 | 17+07.69 | 1410234.75 | 3269497.02 | 1410421.97 | 3269490.05 |
| L5 | 57.917 | N45° 00' 00.00"E | 17+07.69 | 17+65.61 | 1410421.97 | 3269490.05 | 1410462.92 | 3269531.00 |
| L6 | 209.821 | N3° 08' 39.83"W | 17+65.61 | 19+75.43 | 1410462.92 | 3269531.00 | 1410672.42 | 3269519.49 |
| L7 | 189.908 | N1° 18' 21.48"W | 19+75.43 | 21+65.34 | 1410672.42 | 3269519.49 | 1410862.28 | 3269515.16 |
| L8 | 477.583 | N1° 18' 21.48"W | 21+65.34 | 26+42.92 | 1410862.28 | 3269515.16 | 1411339.74 | 3269504.28 |
| L9 | 254.807 | N13° 22' 12.53"W | 26+42.92 | 28+97.73 | 1411339.74 | 3269504.28 | 1411587.64 | 3269445.36 |
| L10 | 90.135 | N76° 29' 44.18"E | 28+97.73 | 29+87.86 | 1411587.64 | 3269445.36 | 1411608.69 | 3269533.00 |
| L11 | 399.998 | N0° 09' 42.55"W | 29+87.86 | 33+87.86 | 1411608.69 | 3269533.00 | 1412008.69 | 3269531.87 |
| L12 | 400.019 | N0° 09' 42.55"W | 33+87.86 | 37+87.88 | 1412008.69 | 3269531.87 | 1412408.70 | 3269530.74 |
| L13 | 399.946 | N0° 27' 33.62"W | 37+87.88 | 41+87.82 | 1412408.70 | 3269530.74 | 1412808.64 | 3269527.53 |
| L14 | 1199.983 | N0° 41' 39.17"W | 41+87.82 | 53+87.81 | 1412808.64 | 3269527.53 | 1414008.53 | 3269512.99 |
| L15 | 1199.983 | N0° 41' 39.17"W | 41+87.82 | 53+87.81 | 1412808.64 | 3269527.53 | 1414008.53 | 3269512.99 |
| L16 | 1199.983 | N0° 41' 39.17"W | 41+87.82 | 53+87.81 | 1412808.64 | 3269527.53 | 1414008.53 | 3269512.99 |
| L17 | 399.963 | N0° 41' 50.46"W | 53+87.81 | 57+87.77 | 1414008.53 | 3269512.99 | 1414408.47 | 3269508.13 |
| L18 | 400.000 | N0° 41' 41.99"W | 57+87.77 | 61+87.77 | 1414408.47 | 3269508.13 | 1414808.44 | 3269503.27 |
| L19 | 400.327 | N2° 10' 24.51"E | 61+87.77 | 65+88.10 | 1414808.44 | 3269503.27 | 1415208.47 | 3269518.46 |
| L20 | 1600.012 | N0° 21' 41.64"W | 65+88.10 | 81+88.11 | 1415208.47 | 3269518.46 | 1416808.45 | 3269508.36 |
| L21 | 1600.012 | N0° 21' 41.64"W | 65+88.10 | 81+88.11 | 1415208.47 | 3269518.46 | 1416808.45 | 3269508.36 |
| L22 | 1600.012 | N0° 21' 41.64"W | 65+88.10 | 81+88.11 | 1415208.47 | 3269518.46 | 1416808.45 | 3269508.36 |
| L23 | 1600.012 | N0° 21' 41.64"W | 65+88.10 | 81+88.11 | 1415208.47 | 3269518.46 | 1416808.45 | 3269508.36 |
| L24 | 261.949 | N44° 04' 52.13"W | 81+88.11 | 84+50.06 | 1416808.45 | 3269508.36 | 1416996.63 | 3269326.13 |
| L25 | 2101.860 | N45° 55' 48.34"E | 84+50.06 | 105+51.92 | 1416996.63 | 3269326.13 | 1418458.55 | 3270836.30 |
| L26 | 2101.860 | N45° 55' 48.34"E | 84+50.06 | 105+51.92 | 1416996.63 | 3269326.13 | 1418458.55 | 3270836.30 |
| L27 | 2101.860 | N45° 55' 48.34"E | 84+50.06 | 105+51.92 | 1416996.63 | 3269326.13 | 1418458.55 | 3270836.30 |

PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

NORTH
0 500
250

811 UNCC CALL BEFORE YOU DIG 811 OR 1-800-922-1987 Utility Notification Center of Colorado

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APPROVED: GP JOB NUMBER: 201662.07
CAD DATE: 1/7/2025
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INTERCEPTOR SEWER
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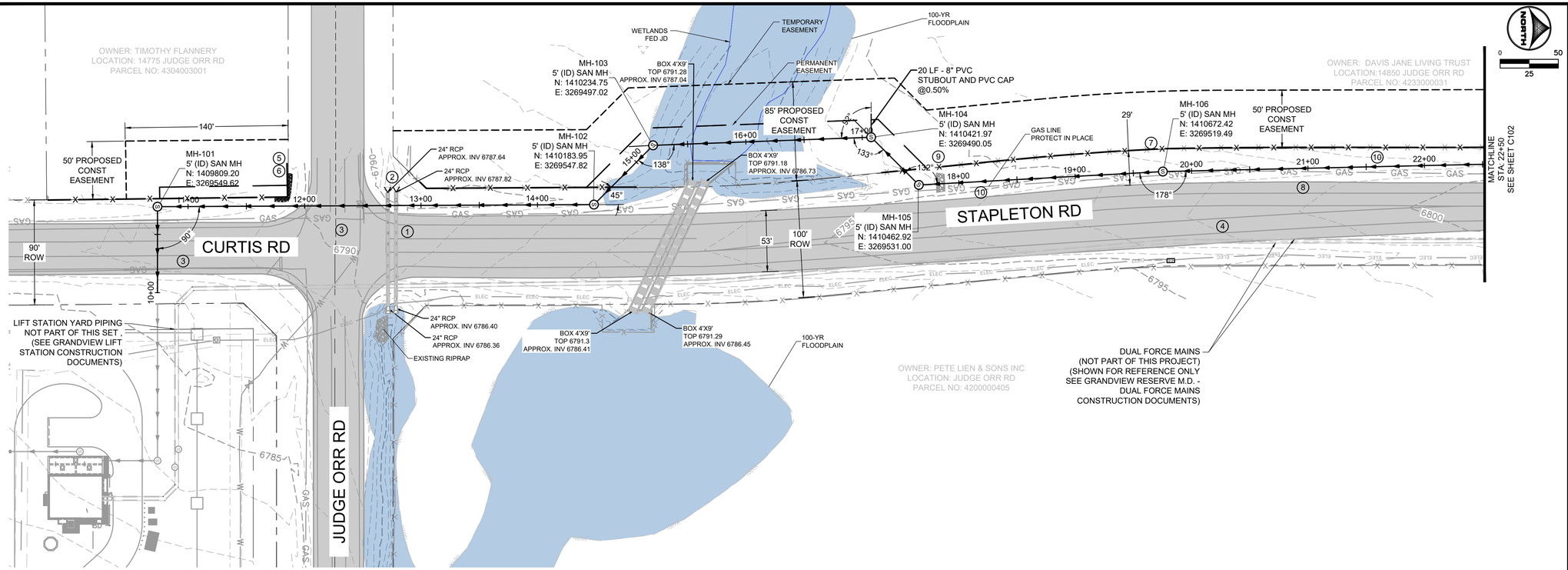
EL PASO COUNTY, CO

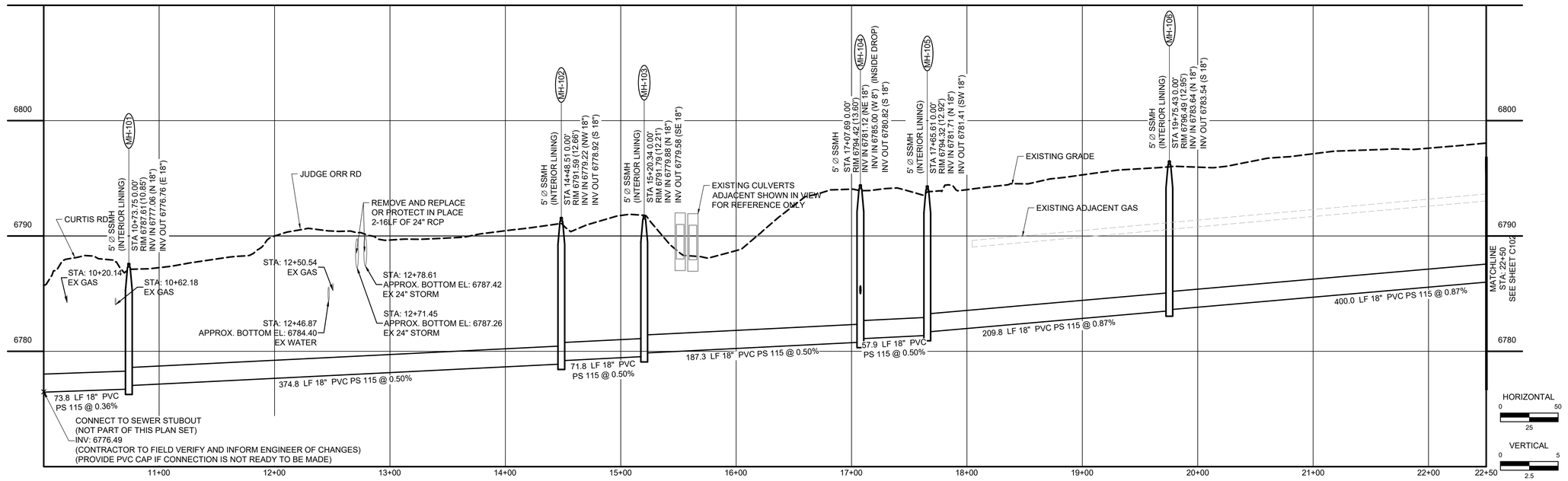
D·R·HORTON America's Builder

CONSTRUCTION DOCUMENTS

OVERALL SITE PLAN & HORIZONTAL ALIGNMENT DATA

SHEET
C100





## KEYMAP

GENERAL NOTES:

1. SEE G.002 FOR WOODMEN HILLS WATER AND WASTEWATER SYSTEM STANDARDS AND INSTALLATION NOTES.
2. CONTRACTOR SHALL PROTECT EXISTING ROADWAY WHERE NOT INDICATED FOR REMOVAL AND REPLACEMENT. DAMAGES OUTSIDE OF DESIGNATED REMOVAL LIMITS SHALL BE REPLACED AT CONTRACTOR'S EXPENSE.

KEY NOTES:

1. PROTECT IN PLACE OR REMOVE AND REINSTALL STORM SEWER. EXISTING PIPES ARE 24" RCP.
2. PROTECT IN PLACE OR REMOVE AND REINSTALL FLARED ENDS
3. REMOVE AND REPLACE ASPHALT PAVEMENT, AND WHITE AND YELLOW PAVEMENT MARKINGS.
4. REMOVALS FOR FORCE MAIN INSTALLATION (NOT PART OF THIS PROJECT).
5. PROTECT IN PLACE OR REMOVE AND REINSTALL BARBED WIRE FENCING AND WOOD POSTS.
6. PROTECT IN PLACE OR REMOVE AND REINSTALL STONES.
7. PROTECT IN PLACE OR REMOVE AND REINSTALL BARBED WIRE FENCING AND STEEL POSTS.
8. REMOVE AND REPLACE ASPHALT PAVEMENT.
9. PROTECT IN PLACE OR REMOVE AND REINSTALL RIP RAP.
10. GAS LINE, PROTECT IN PLACE.

**PRELIMINARY DESIGN NOT FOR CONSTRUCTION**

811 UNCC CALL BEFORE YOU DIG 811 OR 1-800-922-1987 Utility Notification Center of Colorado

COLORADO LICENSED GREGORY L. PANZA 37081 PROFESSIONAL L ENGINEER

DRAWN BY: JMM | JOB DATE: 1/7/2025
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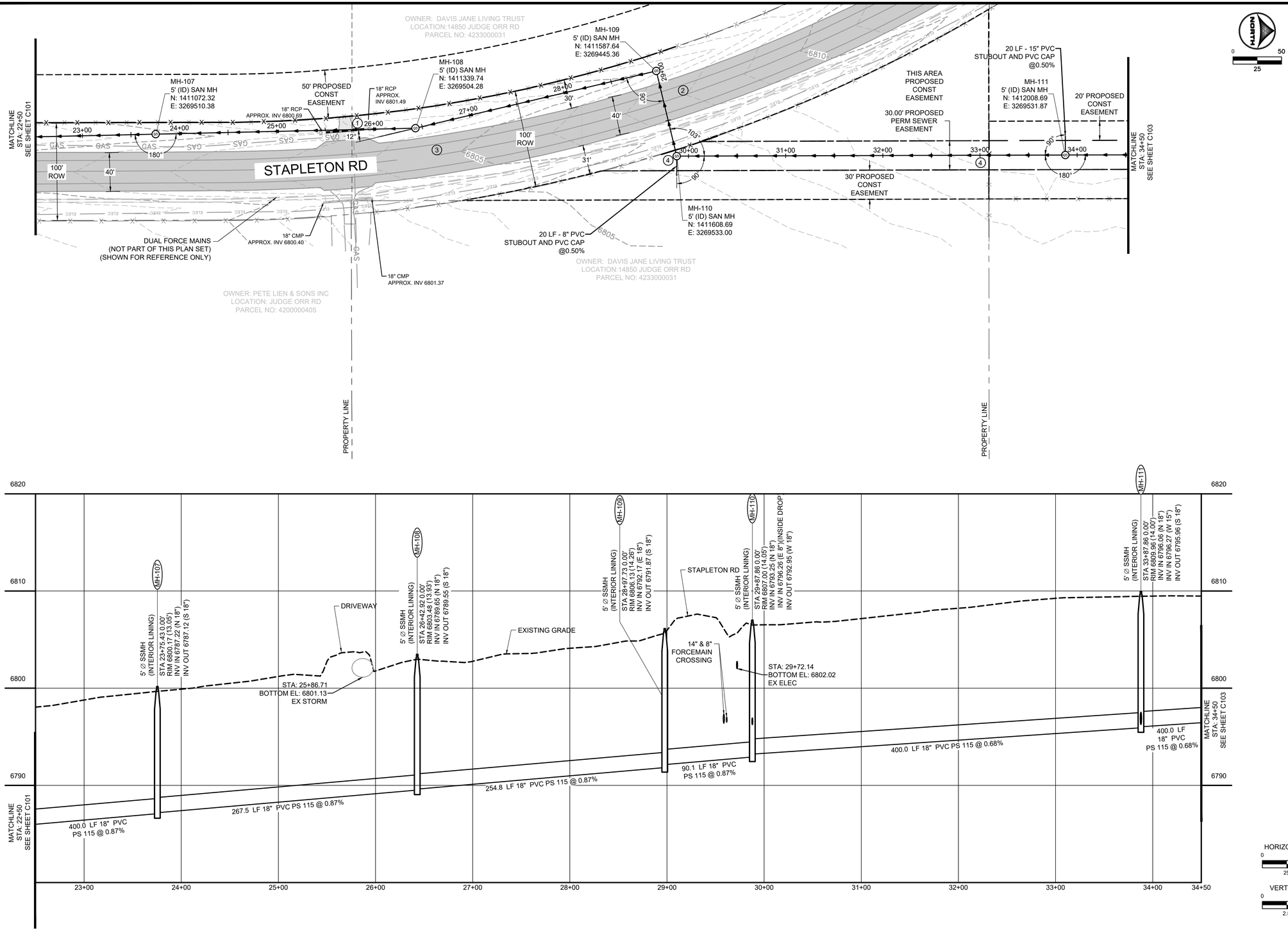
FAX: 713.965.0044

GRANDVIEW RESERVE M.D. - INTERCEPTOR SEWER
D.R. HORTON
EL PASO COUNTY, CO

CONSTRUCTION DOCUMENTS
GRAVITY LINE PLAN AND PROFILE

SHEET C101








KEYMAP

GENERAL NOTES:

1. SEE G.002 FOR WOODMEN HILLS WATER AND WASTEWATER SYSTEM STANDARDS AND INSTALLATION NOTES.
2. CONTRACTOR SHALL PROTECT EXISTING ROADWAY WHERE NOT INDICATED FOR REMOVAL AND REPLACEMENT. DAMAGES OUTSIDE OF DESIGNATED REMOVAL LIMITS SHALL BE REPLACED AT CONTRACTOR'S EXPENSE.

KEY NOTES:

1. REMOVE AND REPLACE DRIVEWAY (GRAVEL & ASPHALT) AND STORM CULVERT. SEE STANDARD DETAIL FOR DRIVEWAY APPROACH ON C702.
2. REMOVE AND REPLACE ASPHALT PAVEMENT, AND WHITE AND YELLOW PAVEMENT MARKINGS.
3. REMOVE AND REPLACE ASPHALT PAVEMENT.
4. PROTECT IN PLACE OR REMOVE AND REINSTALL BARBED WIRE FENCING AND STEEL POSTS.

PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

HORIZONTAL
0 25 50

VERTICAL
0 2.5 5

811 UNCC
CALL BEFORE
YOU DIG
811
OR
1-800-922-1987
Utility Notification
Center of Colorado

COLORADO LICENSED
GREGORY L. PANZA
37081
PROFESSIONAL ENGINEER

| | |
|---|---|
| DRAWN BY: | JMM |
| APPROVED: | GP |
| CAD DATE: | 1/7/2025 |
| CAD FILE: | \\hrgreen.com\HRG\Data\2020\201662.07\CAD\Dwgs\C\Gravity_Line\Gr_Plan and Profile |
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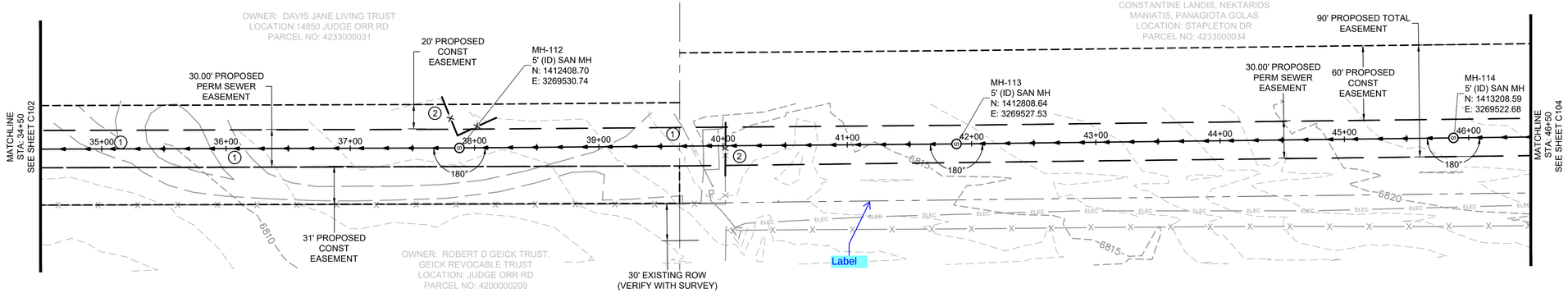
INTERCEPTOR SEWER
D.R. HORTON
EL PASO COUNTY, CO

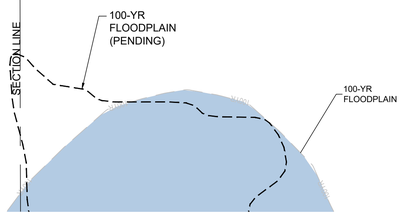
CONSTRUCTION DOCUMENTS

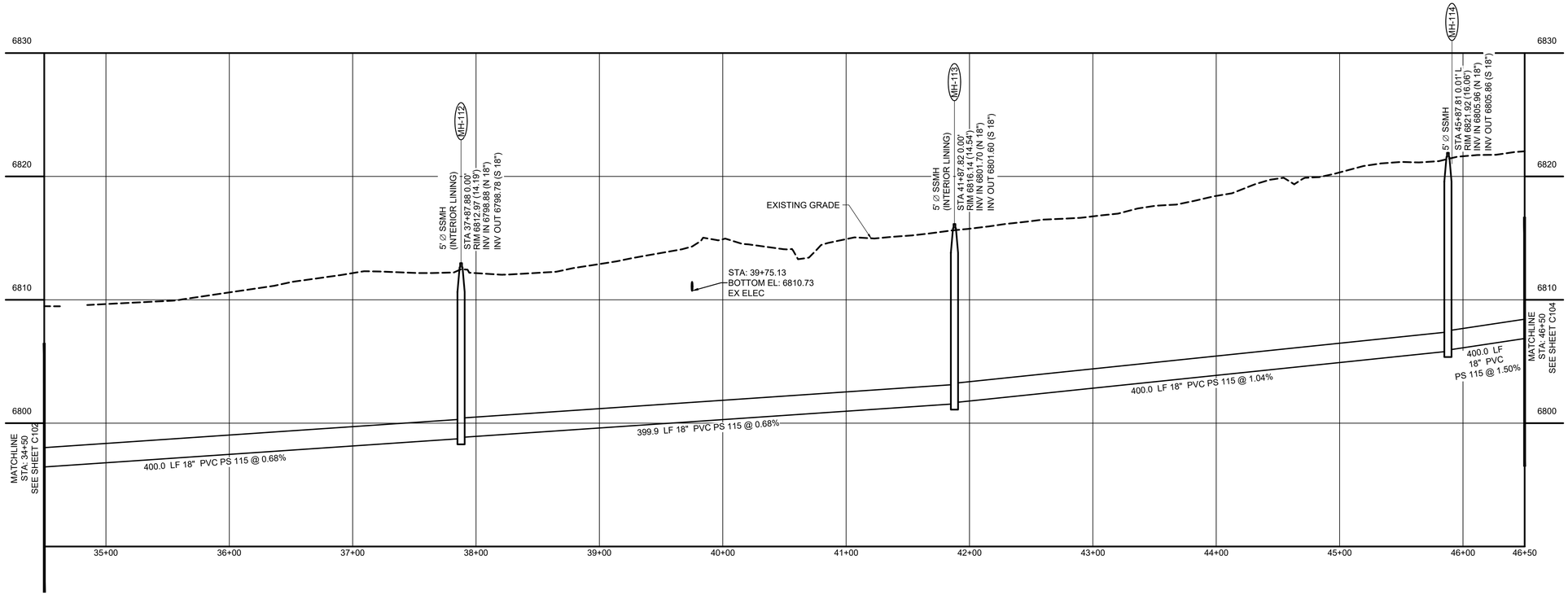
GRAVITY LINE PLAN AND PROFILE

SHEET
C102

EASEMENT




NORTH
0 50
25

HORIZONTAL
0 50
25

VERTICAL
0 5
2.5


KEYMAP

GENERAL NOTES:

1. SEE G.002 FOR WOODMEN HILLS WATER AND WASTEWATER SYSTEM STANDARDS AND INSTALLATION NOTES.
2. CONTRACTOR SHALL PROTECT EXISTING ROADWAY WHERE NOT INDICATED FOR REMOVAL AND REPLACEMENT. DAMAGES OUTSIDE OF DESIGNATED REMOVAL LIMITS SHALL BE REPLACED AT CONTRACTOR'S EXPENSE.

KEY NOTES:

(1) REMOVE AND REPLACE GRAVEL DRIVEWAY.

(2) PROTECT IN PLACE OR REMOVE AND REINSTALL BARBED WIRE FENCING AND STEEL POSTS.

PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

811 UNCC CALL BEFORE YOU DIG 811 OR 1-800-922-1987 Utility Notification Center of Colorado

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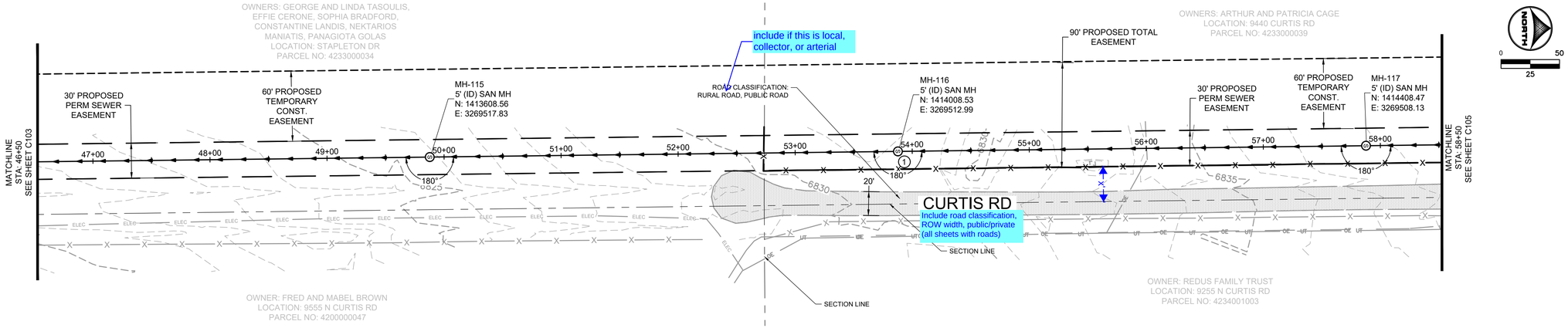
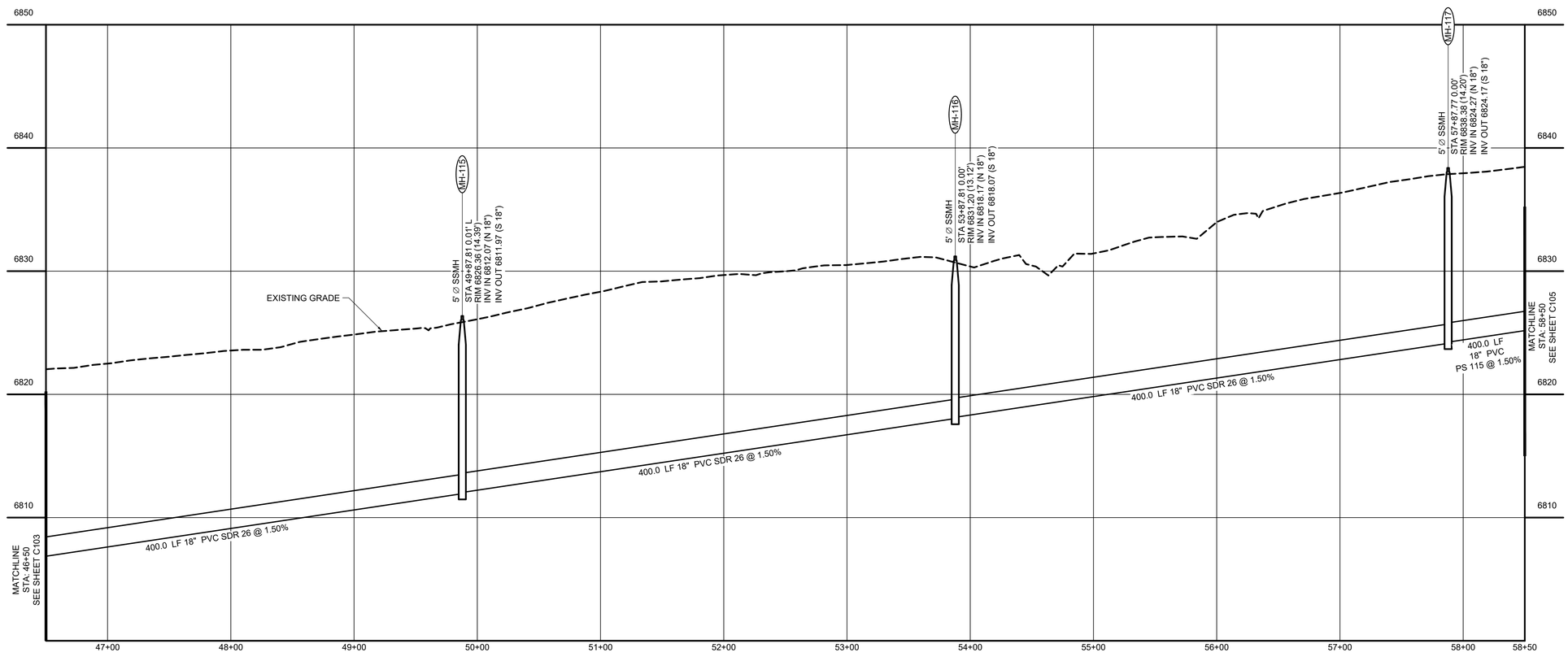
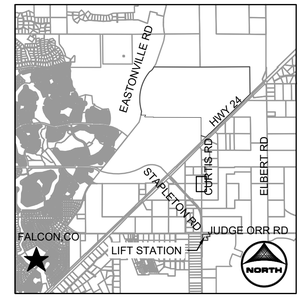
CONSTRUCTION DOCUMENTS
GRAVITY LINE PLAN AND PROFILE

SHEET
C103

HR GREEN Xrefs: XV-Row; XV-Util; vgt-1-dh01-Gr, XC-Lift-Station; XC-Electricals; XC-Driveway; XC-Util; P&P_Key; XC-Dsgn; XC-Initial-EC; 01-DC-San-Gr; XV-Fema; XV-Fema; XV-Util; XC-Row; XV-Dsgn; XC-Hatching; EPC Parcels; Gr_RemoveReplace; PE-Ponza_Greg-CO




KEYMAP

GENERAL NOTES:

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2. CONTRACTOR SHALL PROTECT EXISTING ROADWAY WHERE NOT INDICATED FOR REMOVAL AND REPLACEMENT. DAMAGES OUTSIDE OF DESIGNATED REMOVAL LIMITS SHALL BE REPLACED AT CONTRACTOR'S EXPENSE.

KEY NOTES:

(1) PROTECT IN PLACE OR REMOVE AND REINSTALL BARBED WIRE FENCING AND STEEL POSTS.

PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

HORIZONTAL 0 25 50
VERTICAL 0 2.5 5

811 UNCC CALL BEFORE YOU DIG 811 OR 1-800-922-1987 Utility Notification Center of Colorado

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CAD FILE: \\hrgreen.com\HRG\Data\2020\201662.07\CAD\Dwgs\C\Gravity_Line\Gr_Plan and Profile

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FAX: 713.965.0044

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EL PASO COUNTY, CO

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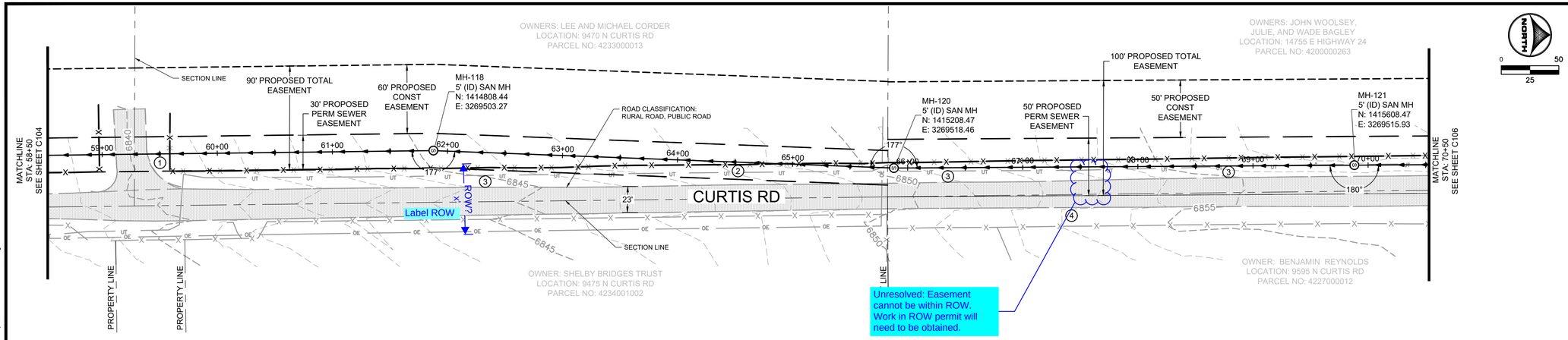
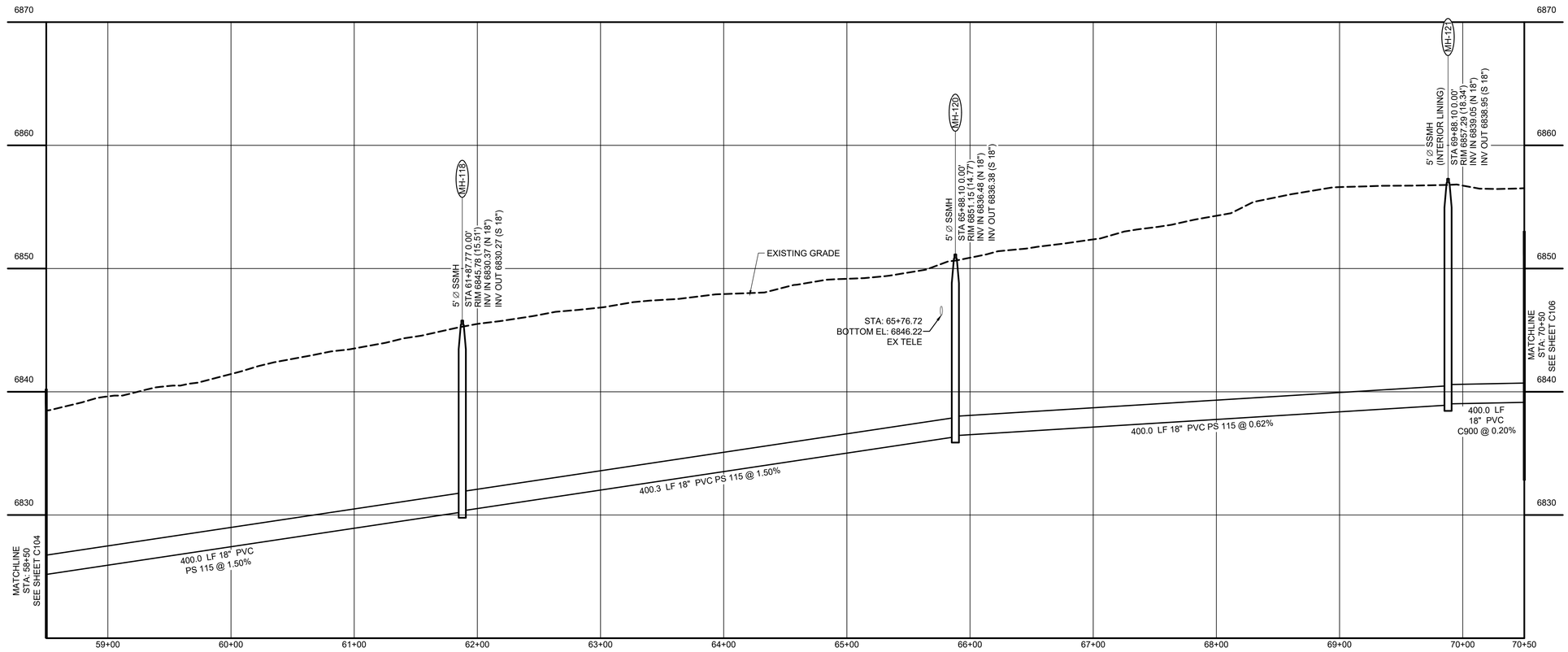
CONSTRUCTION DOCUMENTS
GRAVITY LINE PLAN AND PROFILE

SHEET C104

HR GREEN Xrefs: XV-Row; XV-Util; xg1-1-dh01-Gr; XC-Lift-Station; XC-Electrical; XC-Driveway; XC-Util; P&P_Key; XC-Dsgn; XC-Initial-EC; 01-DC-San-Gr; XV-Fema; XV-Dsgn; XC-Row; XC-Hatching; EPC Parcels; Gr_RemoveReplace; PE-Ponza_Greg-CO





KEYMAP

GENERAL NOTES:

1. SEE G.002 FOR WOODMEN HILLS WATER AND WASTEWATER SYSTEM STANDARDS AND INSTALLATION NOTES.
2. CONTRACTOR SHALL PROTECT EXISTING ROADWAY WHERE NOT INDICATED FOR REMOVAL AND REPLACEMENT. DAMAGES OUTSIDE OF DESIGNATED REMOVAL LIMITS SHALL BE REPLACED AT CONTRACTOR'S EXPENSE.

KEY NOTES:

1. REMOVE AND REPLACE GRAVEL DRIVEWAY.
2. PROTECT IN PLACE OR REMOVE AND REINSTALL BARBED WIRE FENCING AND STEEL POSTS.
3. PROTECT UTILITY IN PLACE OR RELOCATE AS NECESSARY FOR CONSTRUCTION.
4. REMOVE AND REPLACE GRAVEL SURFACING.

PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

HORIZONTAL 0 25 50
VERTICAL 0 2.5 5

811 UNCC CALL BEFORE YOU DIG 811 OR 1-800-922-1987 Utility Notification Center of Colorado

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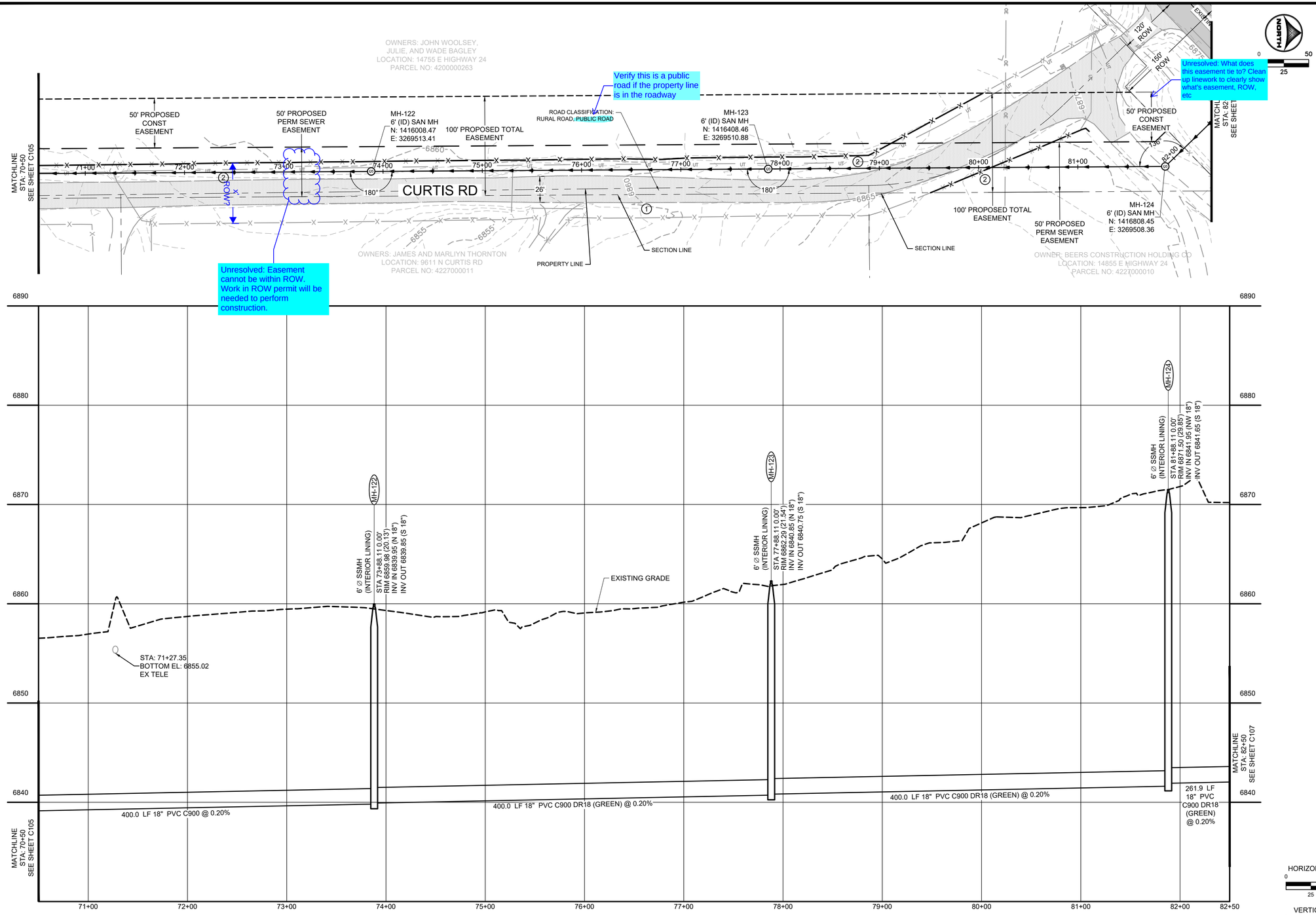
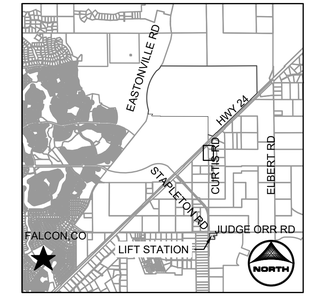
CONSTRUCTION DOCUMENTS
GRAVITY LINE PLAN AND PROFILE

SHEET C105

HR GREEN Xrefs: XV-Row; XV-Util; vgt-1-dh01-Gr; XC-Lift-Station; XC-Electrical; XC-Driveway; XC-Util; P&P_Key; XC-Dsgn; XC-Initail-EC; 01-DC-Son-Gr; XV-Fema; XV-Fema; XV-Dsgn; XC-Row; XV-Util; XC-Hatching; EPC Parcels; Gr_RemoveReplace; PE-Ponza_Greg-CO




KEYMAP

GENERAL NOTES:

1. SEE G.002 FOR WOODMENHILLS WATER AND WASTEWATER SYSTEM STANDARDS AND INSTALLATION NOTES.
2. CONTRACTOR SHALL PROTECT EXISTING ROADWAY WHERE NOT INDICATED FOR REMOVAL AND REPLACEMENT. DAMAGES OUTSIDE OF DESIGNATED REMOVAL LIMITS SHALL BE REPLACED AT CONTRACTOR'S EXPENSE.

KEY NOTES:

(1) REMOVE AND REPLACE GRAVEL SURFACING.

(2) PROTECT UTILITY IN PLACE OR RELOCATE AS NECESSARY FOR CONSTRUCTION.

PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

HORIZONTAL 0 25 50

VERTICAL 0 2.5 5

811 UNCC CALL BEFORE YOU DIG 811 OR 1-800-922-1987 Utility Notification Center of Colorado

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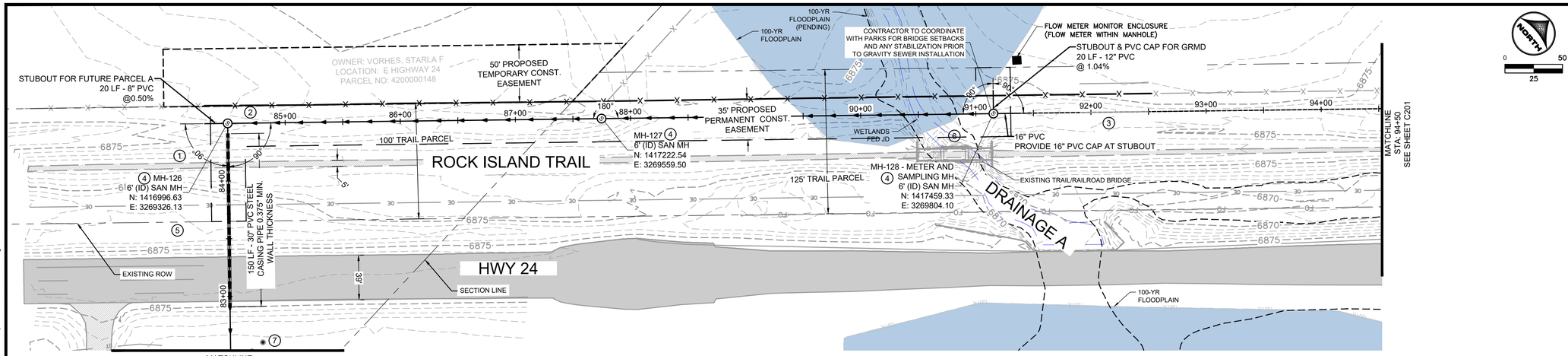
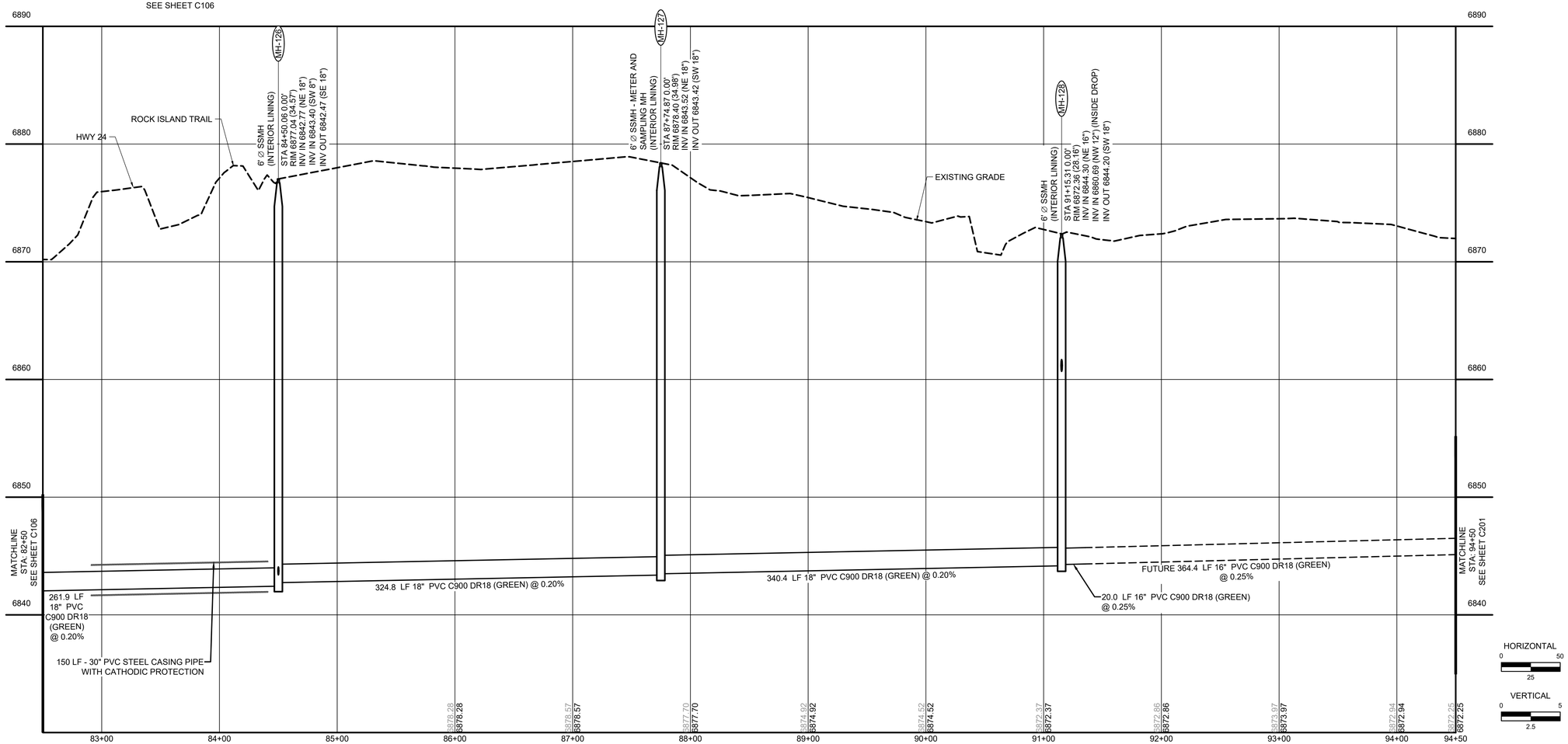
CONSTRUCTION DOCUMENTS
GRAVITY LINE PLAN AND PROFILE

SHEET C106




HORIZONTAL
0 50
25

VERTICAL
0 5
2.5


KEYMAP

GENERAL NOTES:

1. SEE G.002 FOR WOODMEN HILLS WATER AND WASTEWATER SYSTEM STANDARDS AND INSTALLATION NOTES.
2. CONTRACTOR SHALL PROTECT EXISTING ROADWAY WHERE NOT INDICATED FOR REMOVAL AND REPLACEMENT. DAMAGES OUTSIDE OF DESIGNATED REMOVAL LIMITS SHALL BE REPLACED AT CONTRACTOR'S EXPENSE.

KEY NOTES:

(1) PROTECT IN PLACE OR REMOVE AND REPLACE GRAVEL SURFACING.

(2) PROTECT IN PLACE OR REMOVE AND REINSTALL BARBED WIRE FENCING AND STEEL POSTS.

(3) METER MANHOLE. SEE CONSTRUCTION NOTES ON G001. CONTRACTOR SHALL CONNECT TO EXISTING POWER SUPPLY AS PROVIDED BY MOUNTAIN VIEW ELECTRIC ASSOCIATION.

(4) MH-126 THOUGH MH-128: MH RIMS SHALL NOT EXCEED 2" ABOVE FINISHED GRADE.

(5) CAUTION - FIBER OPTIC WITHIN THIS AREA. EXACT LOCATION UNKNOWN

(6) CONTRACTOR SHALL PROTECT HISTORICAL RAILROAD BRIDGE DURING CONSTRUCTION OF PROPOSED UTILITIES. NO MOVEMENT, NO SETTLEMENT AND NO UNDERMINING OF EXISTING STRUCTURE ALLOWED.

(7) PROTECT IN PLACE OR REMOVE TREE.

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COLORADO SPRINGS CO 80920
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FAX: 713.965.0044

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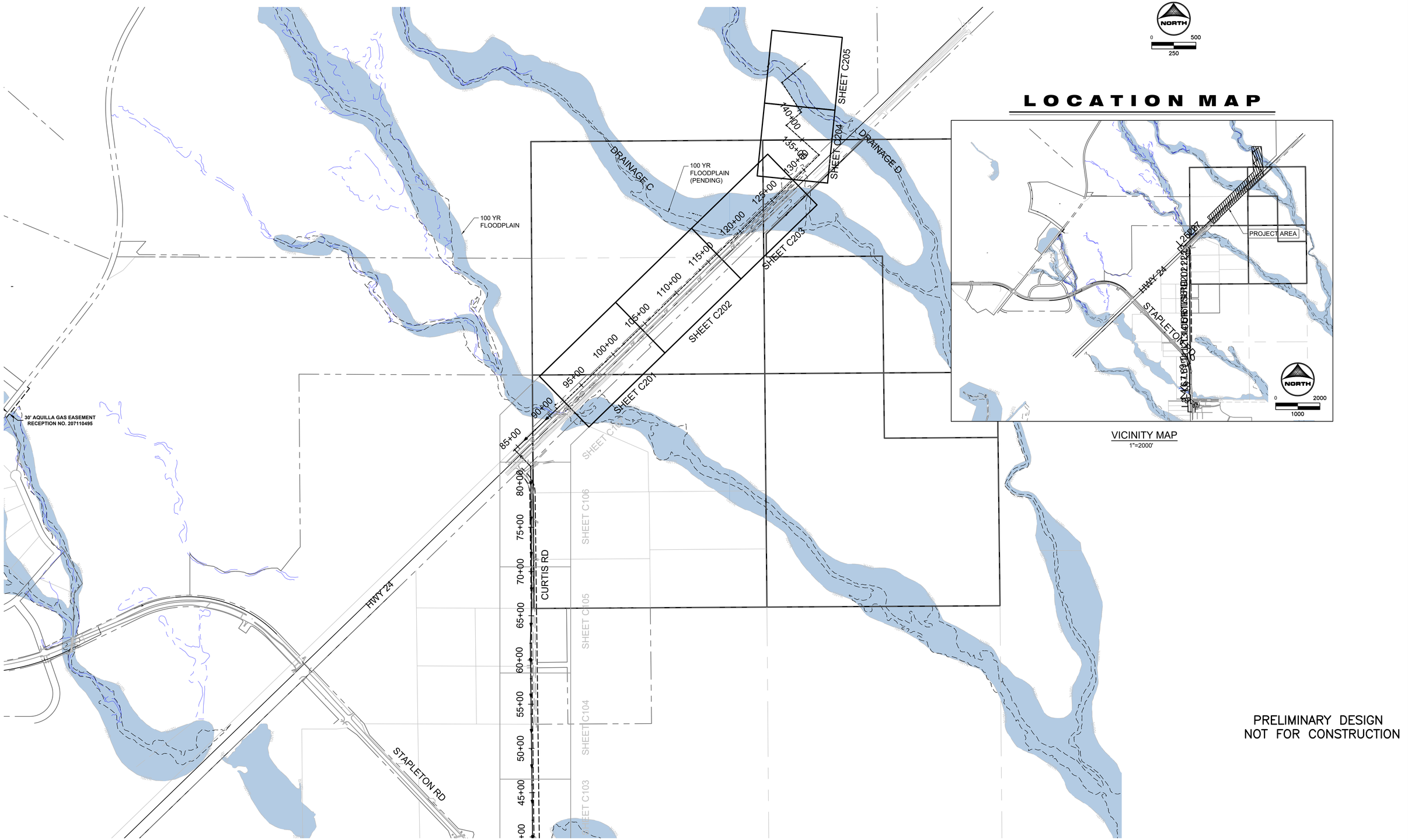
CONSTRUCTION DOCUMENTS

GRAVITY LINE PLAN AND PROFILE

SHEET
C107

HR GREEN Xrefs: XV-Row; XV-Util; xgl-1-@01-Cr; XC-Lift-Station; XC-Electrical; XC-Driveway; XC-Util; P&P_Key; XC-Dsgn; XC-Initial-EC; 01-DC-San-Gr; XV-Fema; XV-Dsgn; XC-Row; XC-Hatching; EPC Parcels; Gr_RemoveReplace; PE-Ponza_Greg-CO




## LOCATION MAP




VICINITY MAP
1"=2000'

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| DRAWN BY: | ACH | JOB DATE: | 6/11/2024 |
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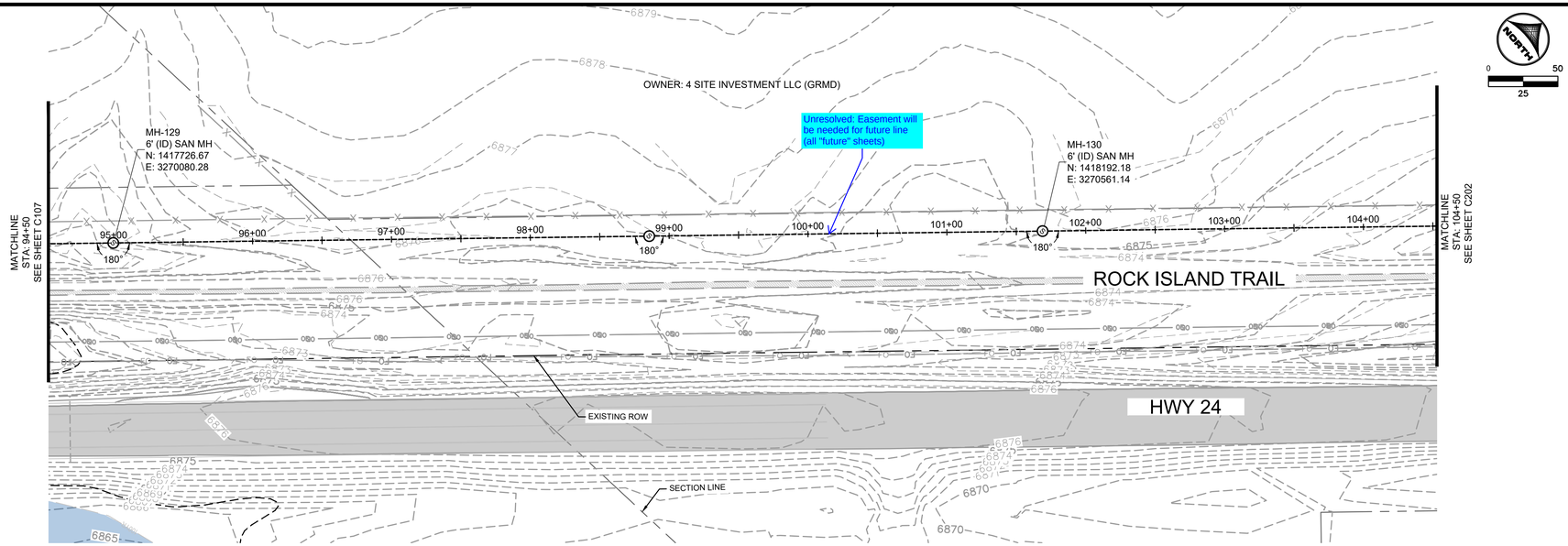
EL PASO COUNTY, CO

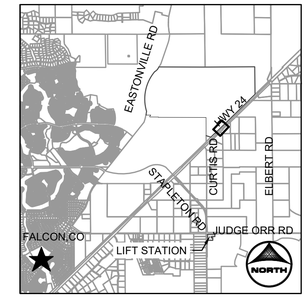
D·R·HORTON America's Builder

CONSTRUCTION DOCUMENTS

FUTURE - OVERALL SITE PLAN

SHEET
C200

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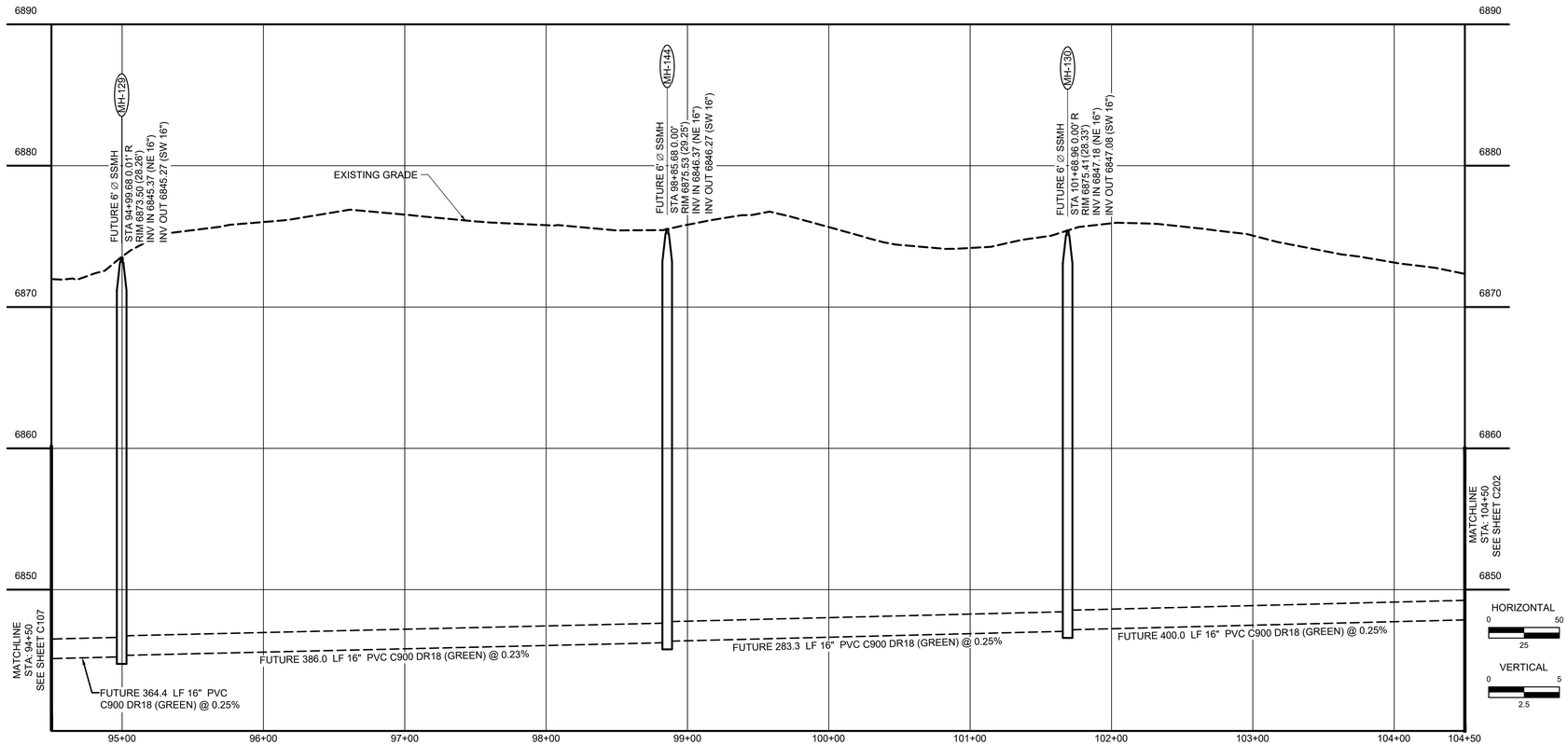


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| DRAWN BY: | ACH | JOB DATE: | 12/9/2024 |
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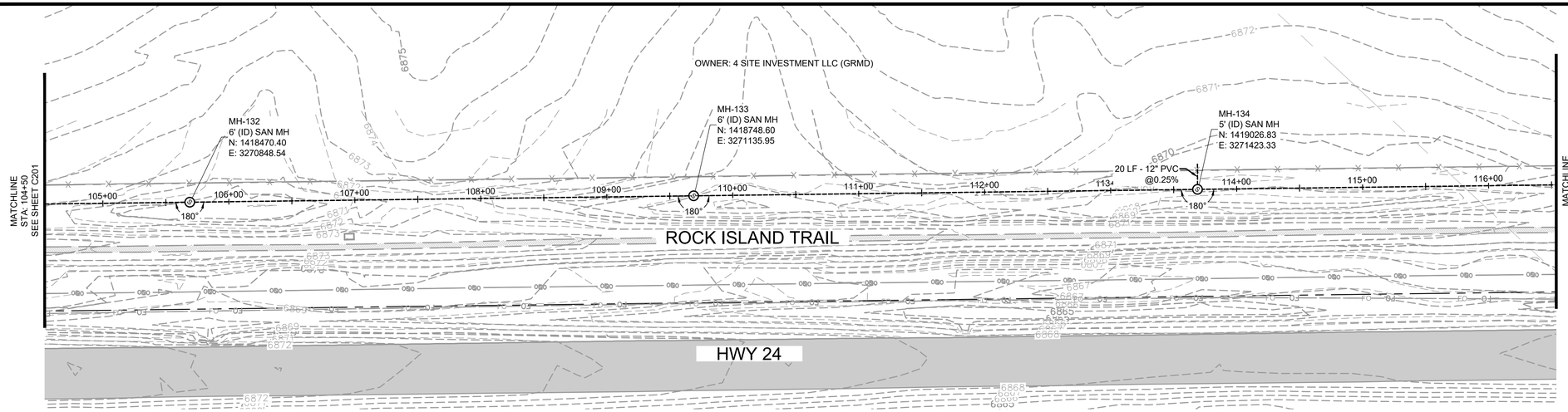
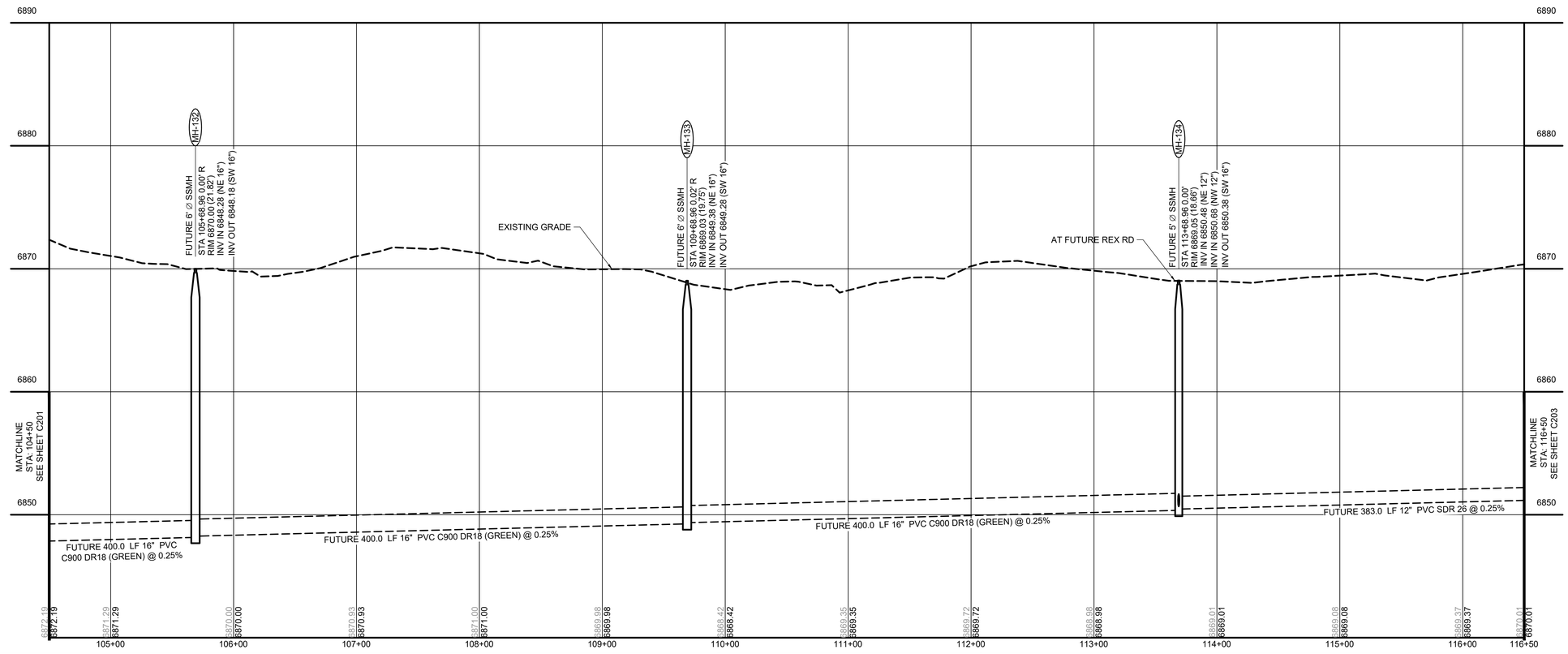
CONSTRUCTION DOCUMENTS

FUTURE - GRAVITY LINE

SHEET
C201

HR GREEN Xrefs: XV-Util; xgt-1-dh01-gr; XC-Lift-Station; XC-Electrical; XC-Driveway; XC-Util; P&P_Key; XC-Dsgn; XC-Initial-EC; 01-DC-San-Gr; XV-Dsgn; XV-Fema; XV-Plan; XV-Fema; XC-Row; XC-Hatching; dv-surf-grandview; Gr_Key Plan-Future; xv-dsgn_662; XV-Row





KEYMAP

PRELIMINARY DESIGN
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Utility Notification Center of Colorado

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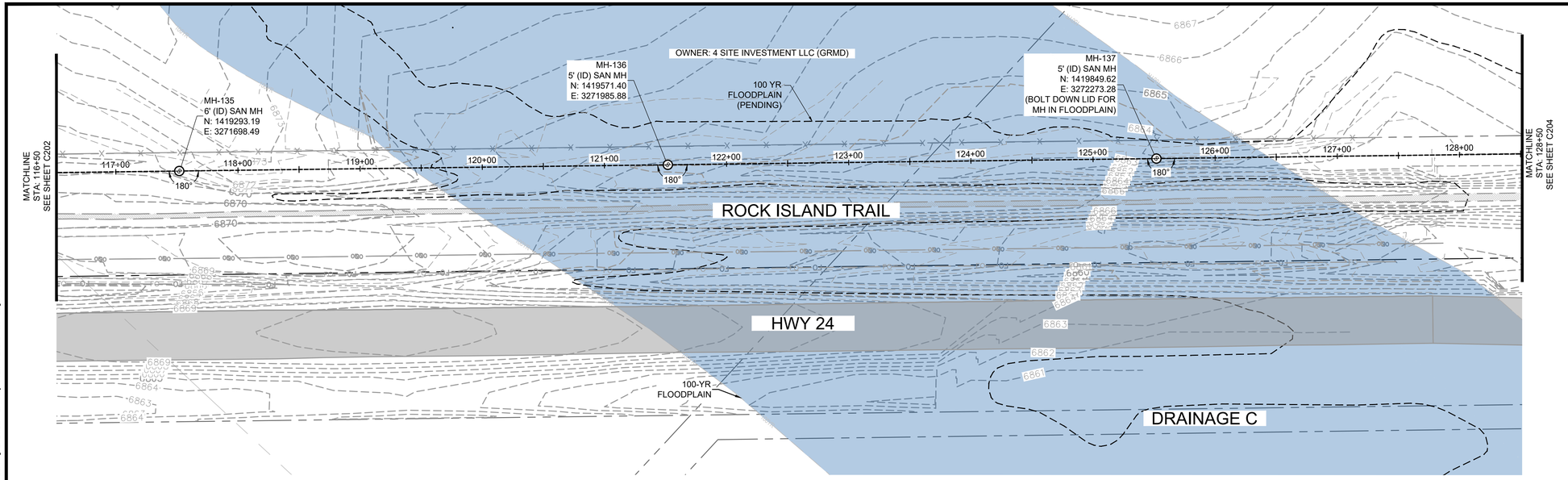
CONSTRUCTION DOCUMENTS
FUTURE - GRAVITY LINE

SHEET
C202

HR GREEN Xrefs: XV-Util; xg1-1-dh01-gr; XC-Lift-Station; XC-Electrical; XC-Driveway; XC-Util; P&P_Key; XC-Dsgn; XC-Initial-EC; 01-DC-San-Gr; XV-Dsgn; XV-Ferma; XC-Row; XC-Hatching; dv-surf-grondview; Gr_Key Plan-Future; xv-dsgn_662; XV-Row





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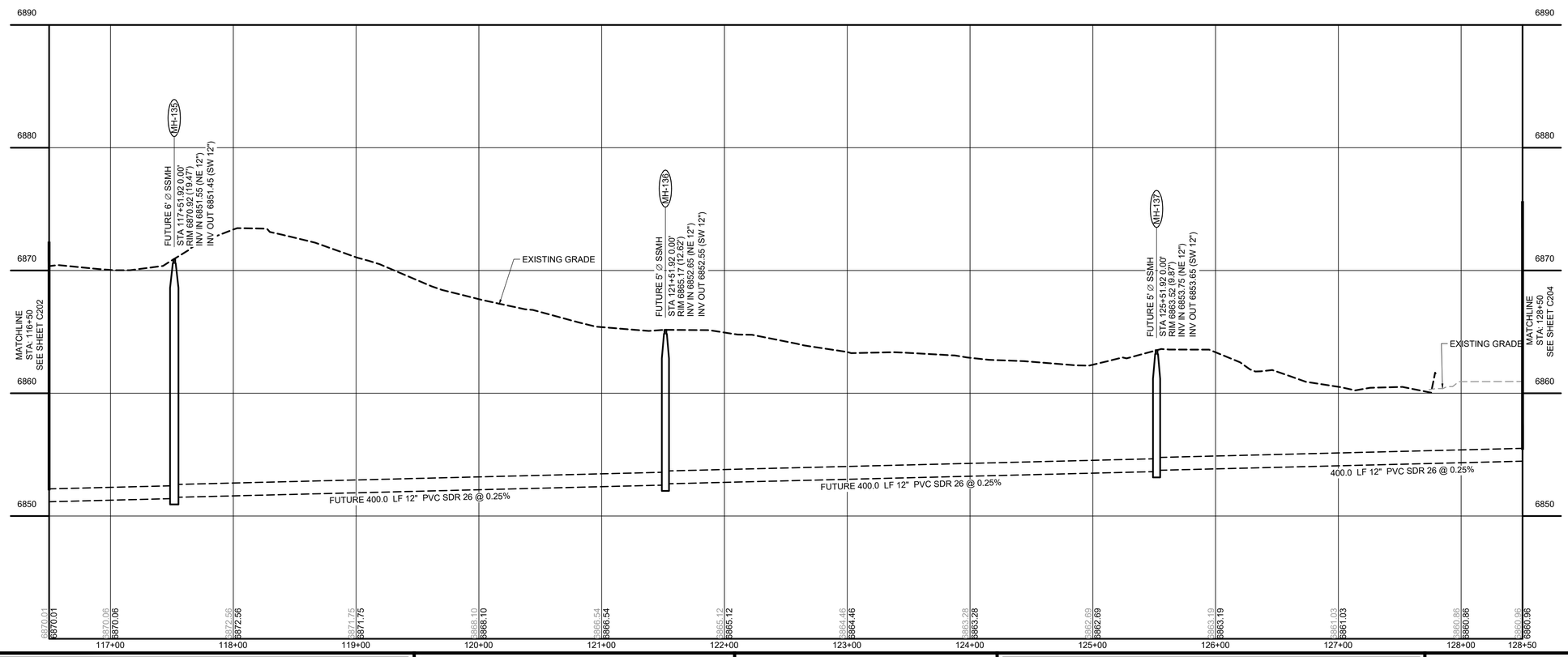


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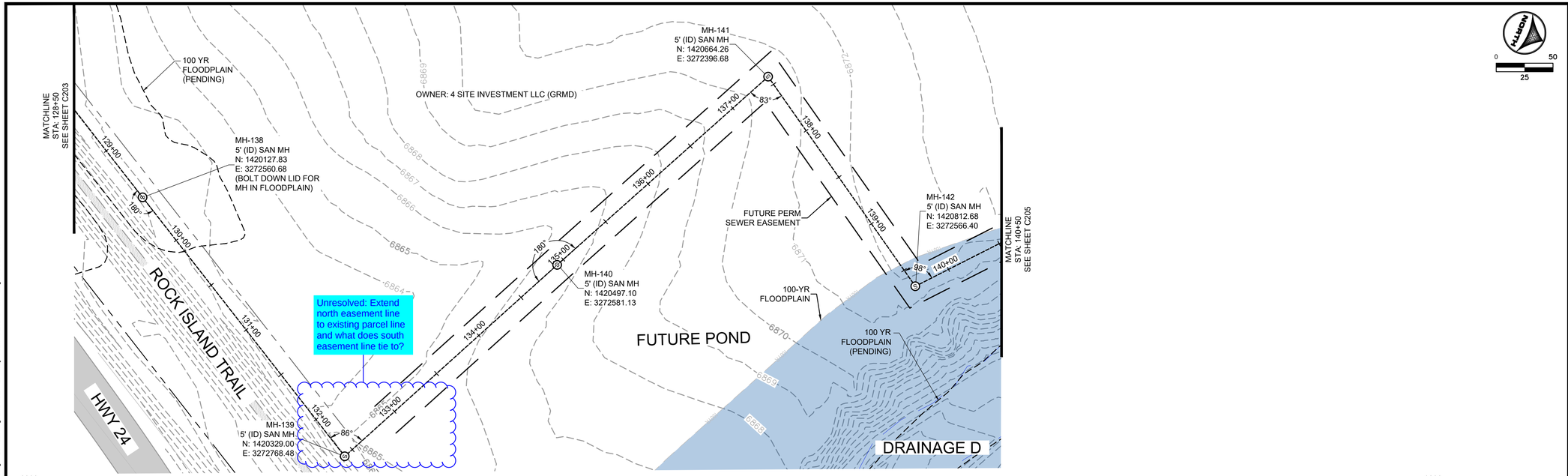
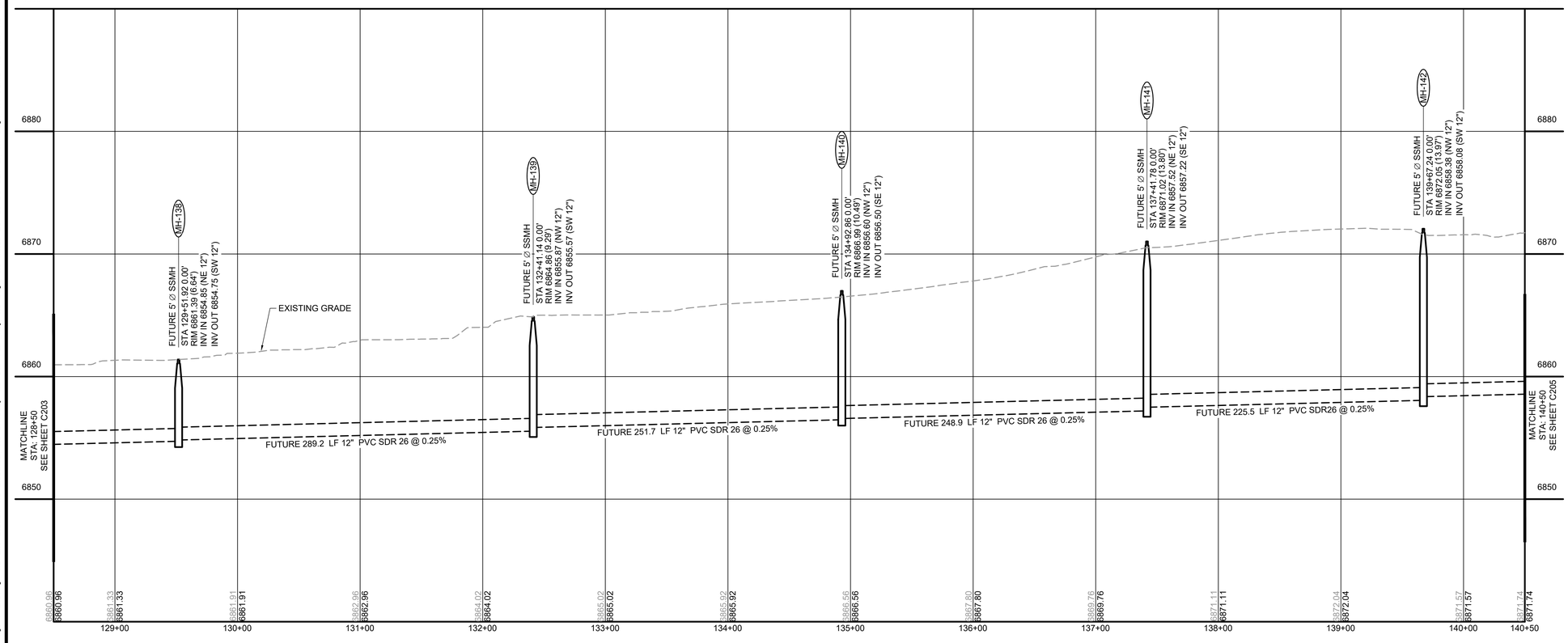
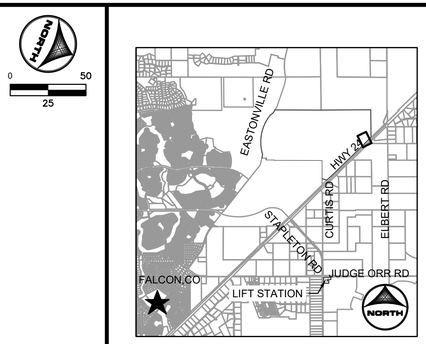
FUTURE - GRAVITY LINE

SHEET C203




KEYMAP

HORIZONTAL
0 25 50

VERTICAL
0 2.5 5

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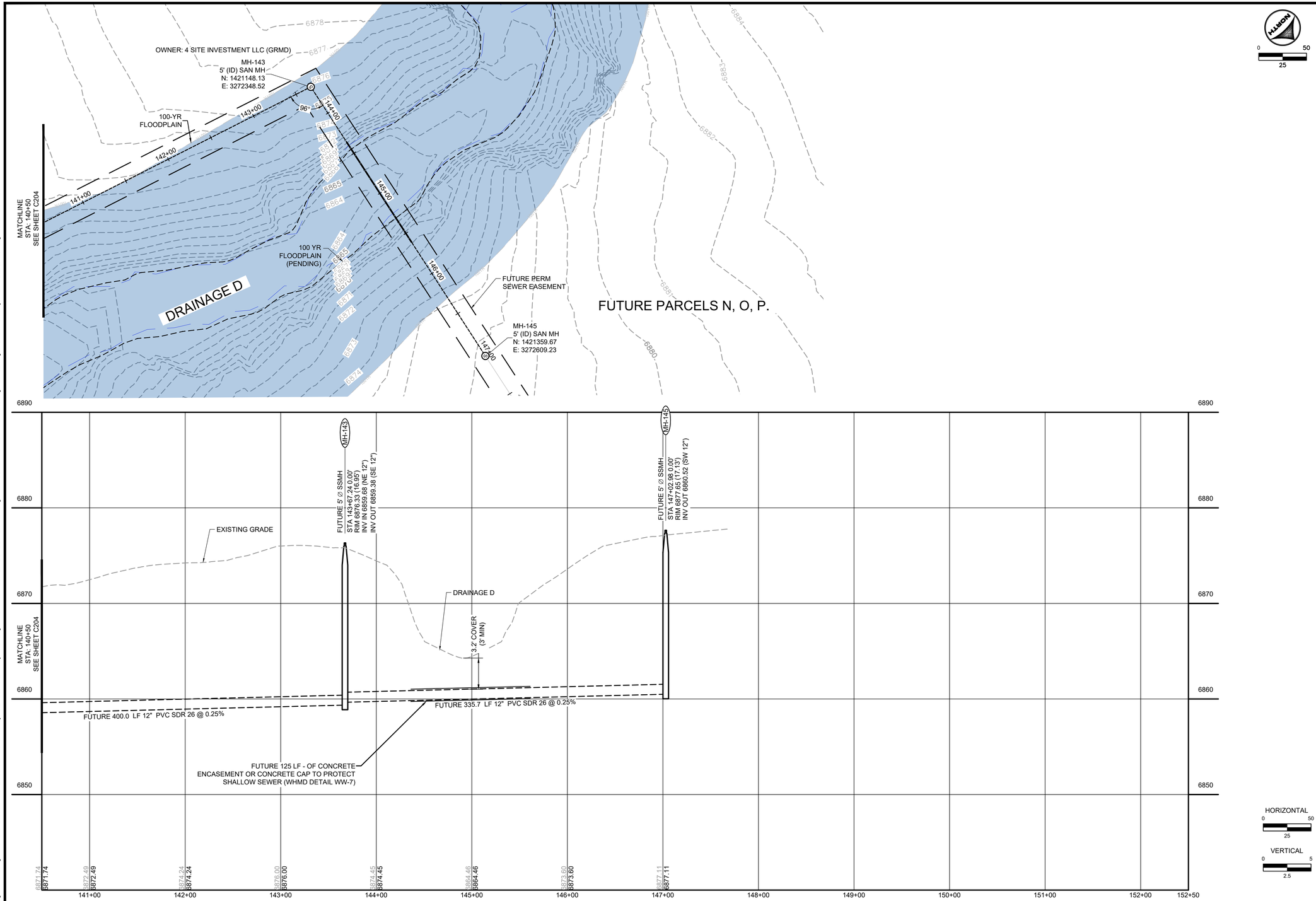
FUTURE - GRAVITY LINE

SHEET
C204

HR GREEN Xrefs: XV-Util; xg1-1-dh01-gr; XC-Lift-Station; XC-Electrical; XC-Driveway; XC-Util; P&P_Key; XC-Dsgn; XC-Initial-EC; 01-DC-San-Gr; XV-Dsgn; XV-Fema; XC-Row; XC-Hatching; dv-surf-grondview; Gr_Key Plan-Future; xv-dsgn_662; XV-Row





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EL PASO COUNTY, CO

CONSTRUCTION DOCUMENTS

FUTURE - GRAVITY LINE

SHEET
C205

HR GREEN Xrefs: XV-Utlt; xg1-1-dh01-gr; XC-Lift-Station; XC-Electrical; XC-Driveway; XC-Utlt; P&P_Key; XC-Dsgn; XC-Initall-EC; 01-DC-San-Gr; XV-Dsgn; XV-Fems; XC-Row; XC-Hatching; dv-surf-grondview; Gr_Key Plan-Future; xv-dsgn_662; XV-Row

# STANDARD NOTES FOR EL PASO COUNTY GRADING AND EROSION CONTROL SHEETS:

1. STORMWATER DISCHARGES FROM CONSTRUCTION SITES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR DEGRADATION OF STATE WATERS. ALL WORK AND EARTH DISTURBANCE SHALL BE DONE IN A MANNER THAT MINIMIZES POLLUTION OF ANY ON-SITE OR OFF-SITE WATERS, INCLUDING WETLANDS.

2. NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.

3. A SEPARATE STORMWATER MANAGEMENT PLAN (SMWP) FOR THIS PROJECT SHALL BE COMPLETED AND AN EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP) ISSUED PRIOR TO COMMENCING CONSTRUCTION. MANAGEMENT OF THE SWMP DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE DESIGNATED QUALIFIED STORMWATER MANAGER OR CERTIFIED EROSION CONTROL INSPECTOR. THE SWMP SHALL BE LOCATED ON SITE AT ALL TIMES DURING CONSTRUCTION AND SHALL BE KEPT UP TO DATE WITH WORK PROGRESS AND CHANGES IN THE FIELD.

4. ONCE THE ESQCP IS APPROVED AND A "NOTICE TO PROCEED" HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE INITIAL STAGE EROSION AND SEDIMENT CONTROL MEASURES AS INDICATED ON THE APPROVED GEC. A PRECONSTRUCTION MEETING BETWEEN THE CONTRACTOR, ENGINEER, AND EL PASO COUNTY WILL BE HELD PRIOR TO ANY CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE APPLICANT TO COORDINATE THE MEETING TIME AND PLACE WITH COUNTY STAFF.

5. CONTROL MEASURES MUST BE INSTALLED PRIOR TO COMMENCEMENT OF ACTIVITIES THAT COULD CONTRIBUTE POLLUTANTS TO STORMWATER, CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, AND DISTURBED LAND AREAS SHALL BE INSTALLED IMMEDIATELY UPON COMPLETION OF THE DISTURBANCE.

6. ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE MAINTAINED AND REMAIN IN EFFECTIVE OPERATING CONDITION UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND FINAL STABILIZATION IS ESTABLISHED. ALL PERSONS ENGAGED IN LAND DISTURBANCE ACTIVITIES SHALL ASSESS THE ADEQUACY OF CONTROL MEASURES AT THE SITE AND IDENTIFY IF CHANGES TO THOSE CONTROL MEASURES ARE NEEDED TO ENSURE THE CONTINUED EFFECTIVE PERFORMANCE OF THE CONTROL MEASURES. ALL CHANGES TO TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES MUST BE INCORPORATED INTO THE STORMWATER MANAGEMENT PLAN.

7. TEMPORARY STABILIZATION SHALL BE IMPLEMENTED ON DISTURBED AREAS AND STOCKPILES WHERE GROUND DISTURBING CONSTRUCTION ACTIVITY HAS PERMANENTLY CEASED OR TEMPORARILY CEASED FOR LONGER THAN 14 DAYS.

8. FINAL STABILIZATION MUST BE IMPLEMENTED AT ALL APPLICABLE CONSTRUCTION SITES. FINAL STABILIZATION IS ACHIEVED WHEN ALL GROUND DISTURBING ACTIVITIES ARE COMPLETE AND ALL DISTURBED AREAS EITHER HAVE A UNIFORM VEGETATIVE COVER WITH INDIVIDUAL PLANT DENSITY OF 70 PERCENT OF PRE-DISTURBANCE LEVELS ESTABLISHED OR EQUIVALENT PERMANENT ALTERNATIVE STABILIZATION METHOD IS IMPLEMENTED. ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED UPON FINAL STABILIZATION AND BEFORE PERMIT CLOSURE.

9. ALL PERMANENT STORMWATER MANAGEMENT FACILITIES SHALL BE INSTALLED AS DESIGNED IN THE APPROVED PLANS. ANY PROPOSED CHANGES THAT EFFECT THE DESIGN OR FUNCTION OF PERMANENT STORMWATER MANAGEMENT STRUCTURES MUST BE APPROVED BY THE ECM ADMINISTRATOR PRIOR TO IMPLEMENTATION.

10. EARTH DISTURBANCES SHALL BE CONDUCTED IN SUCH A MANNER SO AS TO EFFECTIVELY MINIMIZE ACCELERATED SOIL EROSION AND RESULTING SEDIMENTATION. ALL DISTURBANCES SHALL BE DESIGNED, CONSTRUCTED, AND COMPLETED SO THAT THE EXPOSED AREA OF ANY DISTURBED LAND SHALL BE LIMITED TO THE SHORTEST PRACTICAL PERIOD OF TIME. PRE-EXISTING VEGETATION SHALL BE PROTECTED AND MAINTAINED WITHIN 50 HORIZONTAL FEET OF A WATERS OF THE STATE UNLESS SHOWN TO BE INFEASIBLE AND SPECIFICALLY REQUESTED AND APPROVED.

11. COMPACTION OF SOIL MUST BE PREVENTED IN AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES OR WHERE FINAL STABILIZATION WILL BE ACHIEVED BY VEGETATIVE COVER. AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES SHALL ALSO BE PROTECTED FROM SEDIMENTATION DURING CONSTRUCTION UNTIL FINAL STABILIZATION IS ACHIEVED. IF COMPACTION PREVENTION IS NOT FEASIBLE DUE TO SITE CONSTRAINTS, ALL AREAS DESIGNATED FOR INFILTRATION AND VEGETATION CONTROL MEASURES MUST BE LOOSENED PRIOR TO INSTALLATION OF THE CONTROL MEASURE(S).

12. ANY TEMPORARY OR PERMANENT FACILITY DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF STORMWATER AROUND, THROUGH, OR FROM THE EARTH DISTURBANCE AREA SHALL BE A STABILIZED CONVEYANCE DESIGNED TO MINIMIZE EROSION AND THE DISCHARGE OF SEDIMENT OFF SITE.

13. CONCRETE WASH WATER SHALL BE CONTAINED AND DISPOSED OF IN ACCORDANCE WITH THE SWMP. NO WASH WATER SHALL BE DISCHARGED TO OR ALLOWED TO ENTER STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES. CONCRETE WASHOUTS SHALL NOT BE LOCATED IN AN AREA WHERE SHALLOW GROUNDWATER MAY BE PRESENT, OR WITHIN 50 FEET OF A SURFACE WATER BODY, CREEK OR STREAM.

14. DURING DEWATERING OPERATIONS OF UNCONTAMINATED GROUND WATER, SUCH WATER MAY BE DISCHARGED ON SITE, BUT SHALL NOT LEAVE THE SITE IN THE FORM OF SURFACE RUNOFF UNLESS AN APPROVED STATE DEWATERING PERMIT IS IN PLACE.

15. EROSION CONTROL BLANKETING OR OTHER PROTECTIVE COVERING SHALL BE USED ON SLOPES STEEPER THAN 3:1.

16. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL WASTES FROM THE CONSTRUCTION SITE FOR DISPOSAL IN ACCORDANCE WITH LOCAL AND STATE REGULATORY REQUIREMENTS. NO CONSTRUCTION DEBRIS, TREE SLASH, BUILDING MATERIAL WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, OR DISCHARGED AT THE SITE.

17. WASTE MATERIALS SHALL NOT BE TEMPORARILY PLACED OR STORED IN THE STREET, ALLEY, OR OTHER PUBLIC WAY, UNLESS IN ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN, CONTROL MEASURES MAY BE REQUIRED BY EL PASO COUNTY ENGINEERING IF DEEMED NECESSARY, BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES.

18. TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF-SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFF-SITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY.

19. THE OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION DEBRIS, DIRT, TRASH, ROCK, SEDIMENT, SOIL, AND SAND THAT MAY ACCUMULATE IN ROADS, STORM DRAINS AND OTHER DRAINAGE CONVEYANCE SYSTEMS AND STORMWATER APPURTENANCES AS A RESULT OF SITE DEVELOPMENT.

20. THE QUANTITY OF MATERIALS STORED ON THE PROJECT SITE SHALL BE LIMITED, AS MUCH AS PRACTICAL, TO THAT QUANTITY REQUIRED TO PERFORM THE WORK IN AN ORDERLY SEQUENCE. ALL MATERIALS STORED ON-SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER, IN THEIR ORIGINAL CONTAINERS, WITH ORIGINAL MANUFACTURER'S LABELS.

21. NO CHEMICAL(S) HAVING THE POTENTIAL TO BE RELEASED IN STORMWATER ARE TO BE STORED OR USED ONSITE UNLESS PERMISSION FOR THE USE OF SUCH CHEMICAL(S) IS GRANTED IN WRITING BY THE ECM ADMINISTRATOR. IN GRANTING APPROVAL FOR THE USE OF SUCH CHEMICAL(S), SPECIAL CONDITIONS AND MONITORING MAY BE REQUIRED.

22. BULK STORAGE OF ALLOWED PETROLEUM PRODUCTS OR OTHER ALLOWED LIQUID CHEMICALS IN EXCESS OF 55 GALLONS SHALL REQUIRE ADEQUATE SECONDARY CONTAINMENT PROTECTION TO CONTAIN ALL SPILLS ONSITE AND TO PREVENT ANY SPILLED MATERIALS FROM ENTERING STATE WATERS, ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR OTHER FACILITIES.

23. NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE CURB AND GUTTER OR DITCH EXCEPT WITH APPROVED SEDIMENT CONTROL MEASURES.

24. OWNER/DEVELOPER AND THEIR AGENTS SHALL COMPLY WITH THE "COLORADO WATER QUALITY CONTROL ACT" (TITLE 25, ARTICLE 8, CRS), AND THE "CLEAN WATER ACT" (33 USC 1344), IN ADDITION TO THE REQUIREMENTS OF THE LAND DEVELOPMENT CODE, DCM VOLUME II AND THE ECM APPENDIX I. ALL APPROPRIATE PERMITS MUST BE OBTAINED BY THE CONTRACTOR PRIOR TO CONSTRUCTION (1041, NPDES, FLOODPLAIN, 404, FUGITIVE DUST, ETC.). IN THE EVENT OF CONFLICTS BETWEEN THESE REQUIREMENTS AND OTHER LAWS, RULES, OR REGULATIONS OF OTHER FEDERAL, STATE, LOCAL, OR COUNTY AGENCIES, THE MOST RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.

25. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE ONLY AT APPROVED CONSTRUCTION ACCESS POINTS.

26. PRIOR TO CONSTRUCTION THE PERMITTEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.

27. A WATER SOURCE SHALL BE AVAILABLE ON SITE DURING EARTHWORK OPERATIONS AND SHALL BE UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.

28. THE SOILS REPORT FOR THIS SITE HAS BEEN PREPARED BY _____ AND SHALL BE CONSIDERED A PART OF THESE PLANS.

29. AT LEAST TEN (10) DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB ONE (1) ACRE OR MORE, THE OWNER OR OPERATOR OF CONSTRUCTION ACTIVITY SHALL SUBMIT A PERMIT APPLICATION FOR STORMWATER DISCHARGE TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, WATER QUALITY DIVISION. THE APPLICATION CONTAINS CERTIFICATION OF COMPLETION OF A STORMWATER MANAGEMENT PLAN (SWMP), OF WHICH THIS GRADING AND EROSION CONTROL PLAN MAY BE A PART. FOR INFORMATION OR APPLICATION MATERIALS CONTACT:

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

SEND MUD MAT SPECIFICATION TO MIKAYLA HARTFORD AT MIKAYLAHARTFORD@ELPASO.COM TO ENSURE MUD MAT USE IS ACCEPTABLE IN EL PASO COUNTY.

# PERMANENT SEED SPECS

1. SPECIAL SEED MIX #1 - TBD SPECIAL ON PRIVATE LAND - LANDOWNER WILL WATER.
2. SEE LEGEND AND EROSION CONTROL DETAILS FOR SEED MIX/TYPE.

PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

DRAWN BY: ACH JOB DATE: 5/14/2024
APPROVED: JF JOB NUMBER: 201662.07
CAD DATE: 1/7/2025
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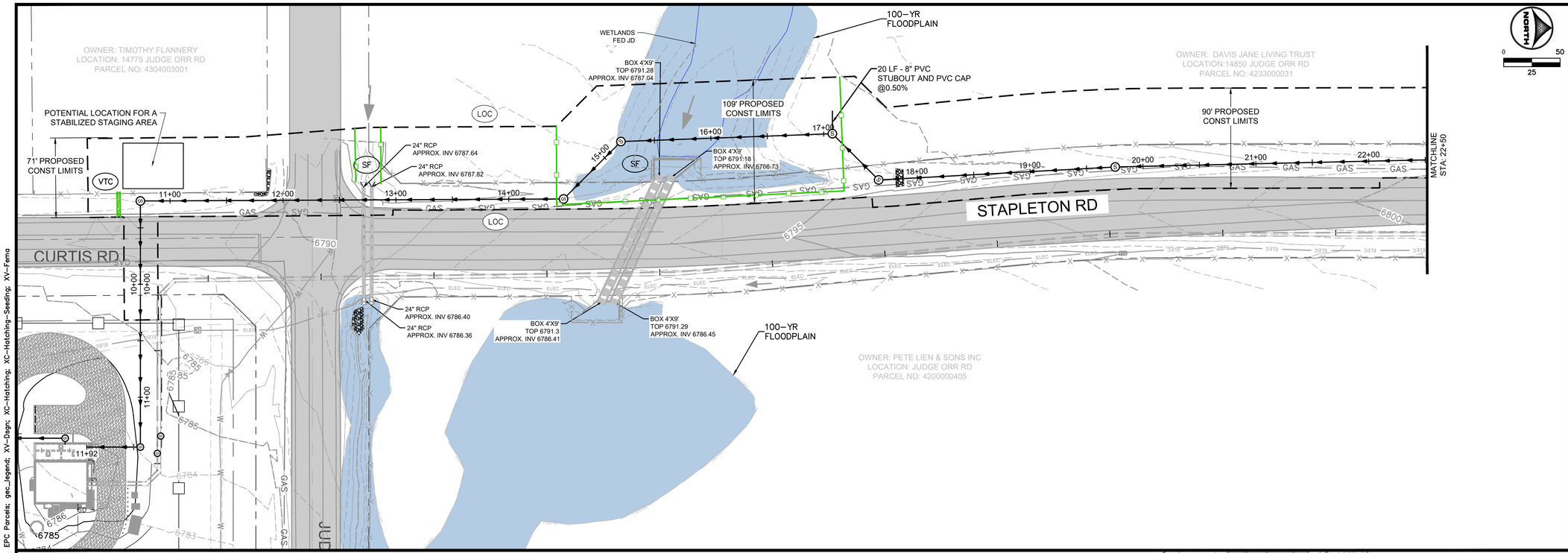
HR GREEN - COLORADO SPRINGS
1975 RESEARCH PARKWAY | SUITE 230
COLORADO SPRINGS CO 80920
PHONE: 719.300.4140
FAX: 713.965.0044

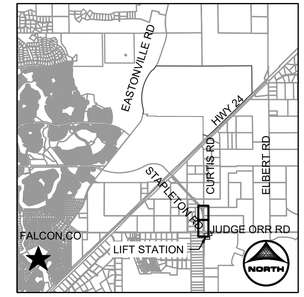
GRANDVIEW RESERVE M.D. - INTERCEPTOR SEWER
D.R. HORTON
EL PASO COUNTY, CO

D·R·HORTON America's Builder

CONSTRUCTION DOCUMENTS
GRADING AND EROSION CONTROL NOTES

SHEET
C300




KEYMAP

GENERAL NOTES:

1. CONTRACTOR SHALL REPLACE THE AREA OF CONSTRUCTION TO THE EXISTING, PRE-CONSTRUCTION GRADE.

GEC LEGEND:

| | | |
|---|---|---|
| CWA | CONCRETE WASHOUT AREA | |
| ED/DS | EARTH DIKE & DRAINAGE SWALE | |
| IP | INLET PROTECTION | |
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| RCD | ROCK CHECK DAM | |
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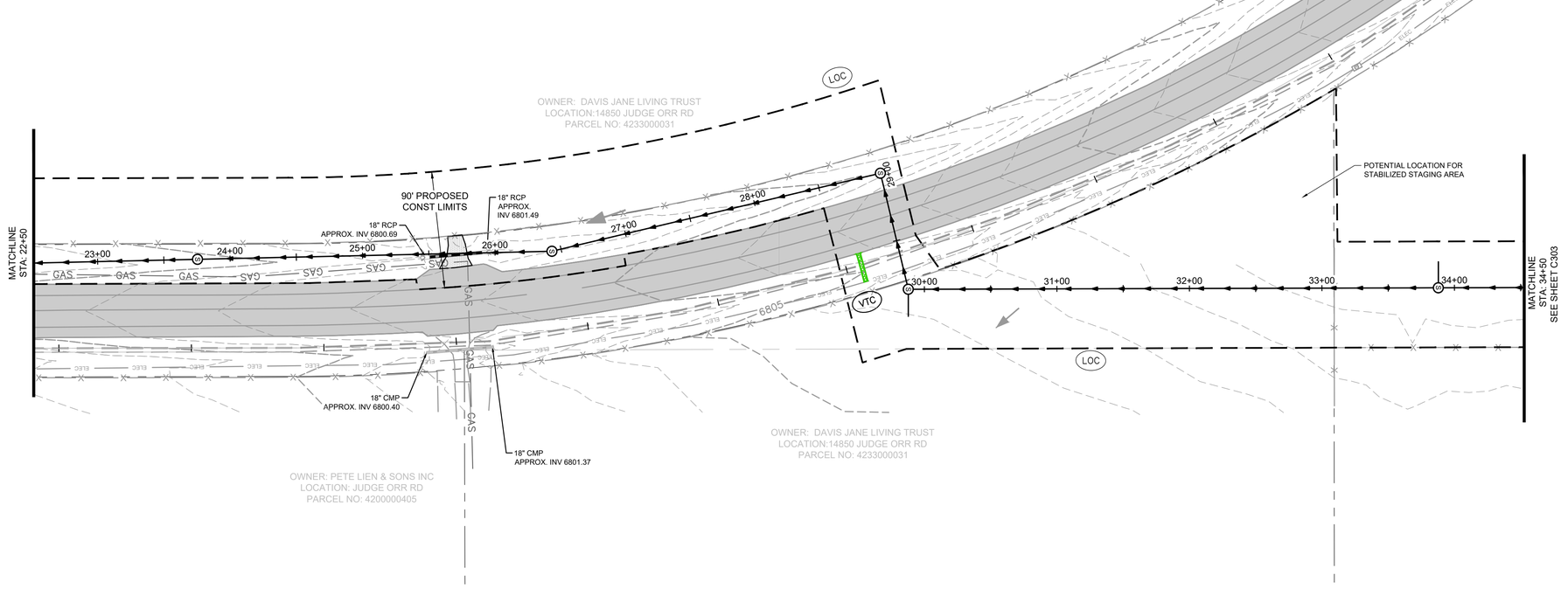
| | EX FLOODPLAIN | |




811 UNCC CALL BEFORE YOU DIG 811 OR 1-800-922-1987 Utility Notification Center of Colorado

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PEYTON, CO

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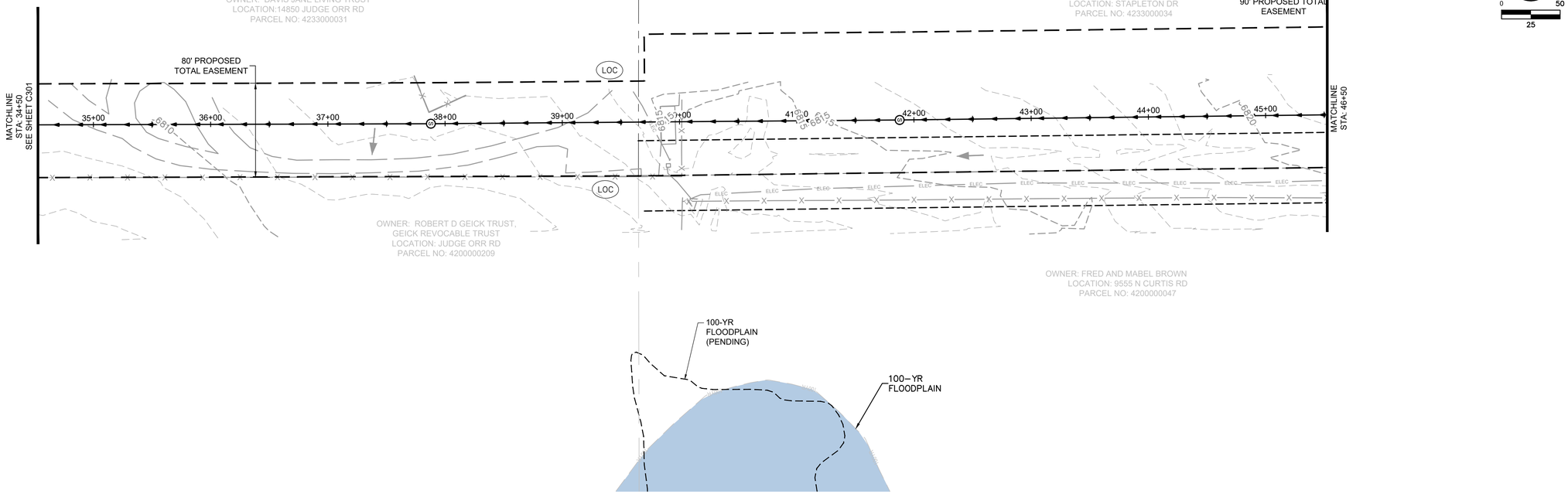
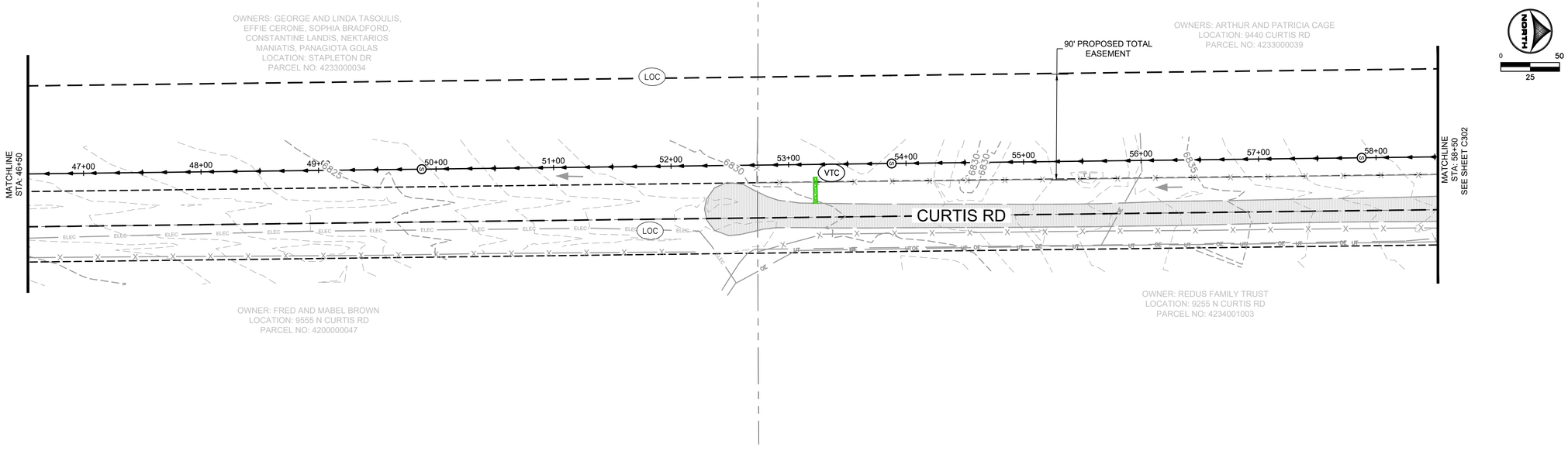
CONSTRUCTION DOCUMENTS

EROSION CONTROL INITIAL-INTERIM PLAN

SHEET C301

HR GREEN Xrefs: XV-Row; XV-Util; xgl-1-gb01-Ls; XC-Lift-Station; XC-Electrical; XC-Driveway; XC-Util; P&P_Key; XC-Dsgn; XC-Initial-EC; 01-DC-San-Gr; XC-Row; EPC Parcels; gec_legend; XC-Hatching; XC-Hatching-Seeding; XV-Femo





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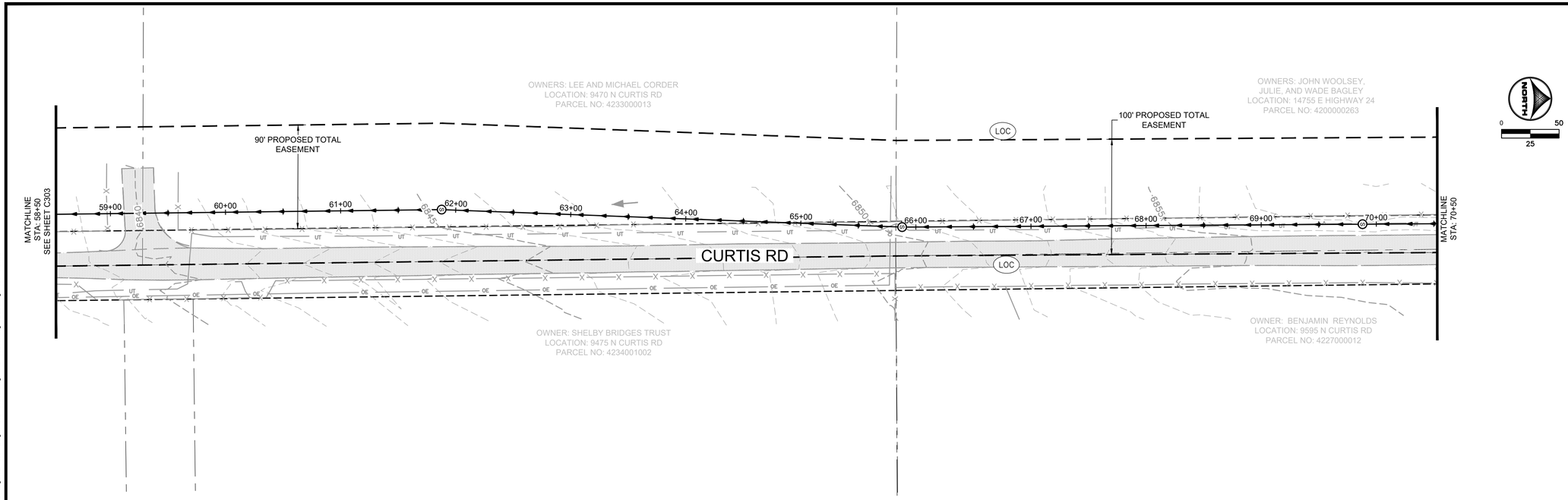
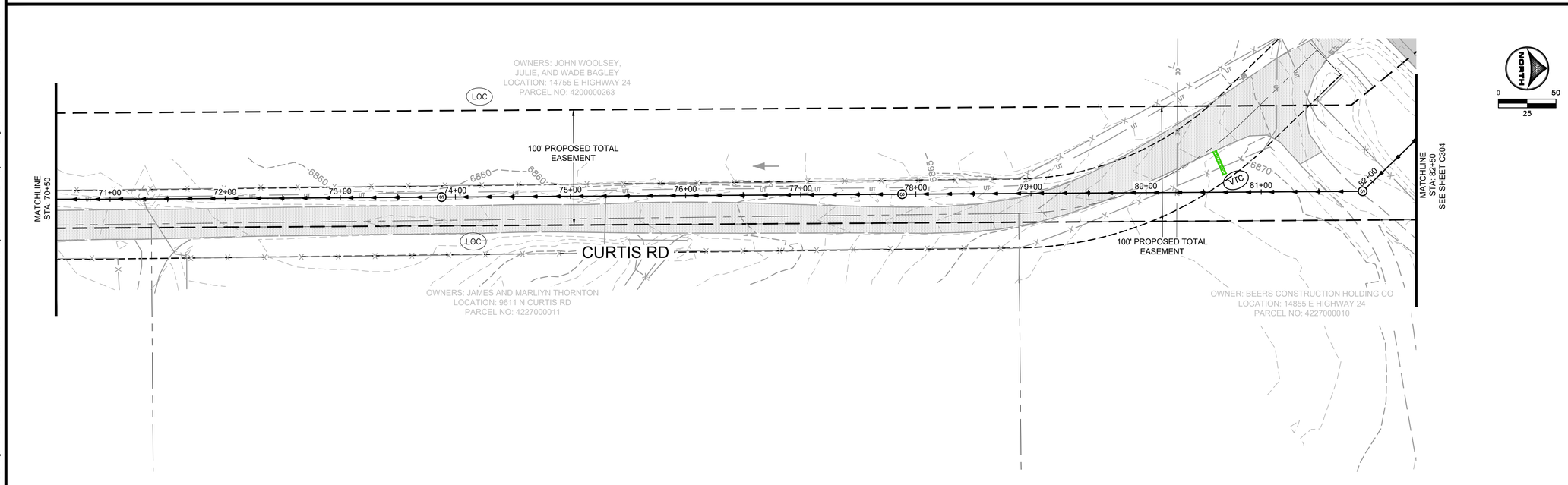
CONSTRUCTION DOCUMENTS

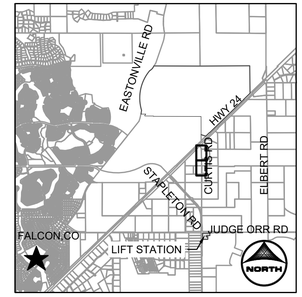
EROSION CONTROL INITIAL-INTERIM PLAN

SHEET C302

HR GREEN Xrefs: XV-Row; XV-Util; xgl-1-db01-Ls; XC-Lift-Station; XC-Electrical; XC-Driveway; XC-Util; P&P_Key; XC-Dsgn; XC-Initial-EC; 01-DC-Sam-Gr; XC-Row; EPC Parcels; gec_legend; XV-Dsgn; XC-Hatching; XC-Hatching-Seeding; XV-Femo

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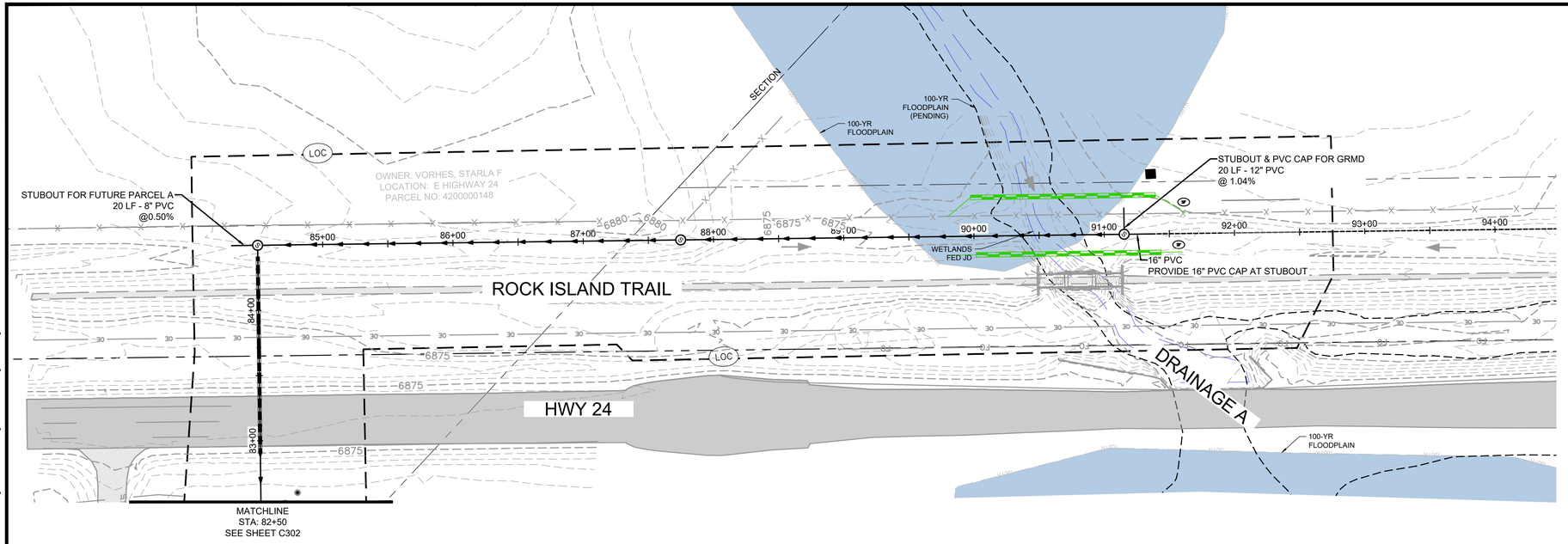
CONSTRUCTION DOCUMENTS

EROSION CONTROL INITIAL-INTERIM PLAN

SHEET
C303

HR GREEN Xrefs: XV-Row; XV-UtB; vgl-1-dt01-Ls; XC-Lift-Station; XC-Electrical; XC-Driveway; XC-UtB; P&P_Key; XC-Dsgn; XC-Initial-EC; 01-DC-Son-Gr; XC-Row; EPC Parcels; gec_legend; XV-Dsgn; XC-Hatching; XC-Hatching-Seeding; XV-Femo

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KEYMAP

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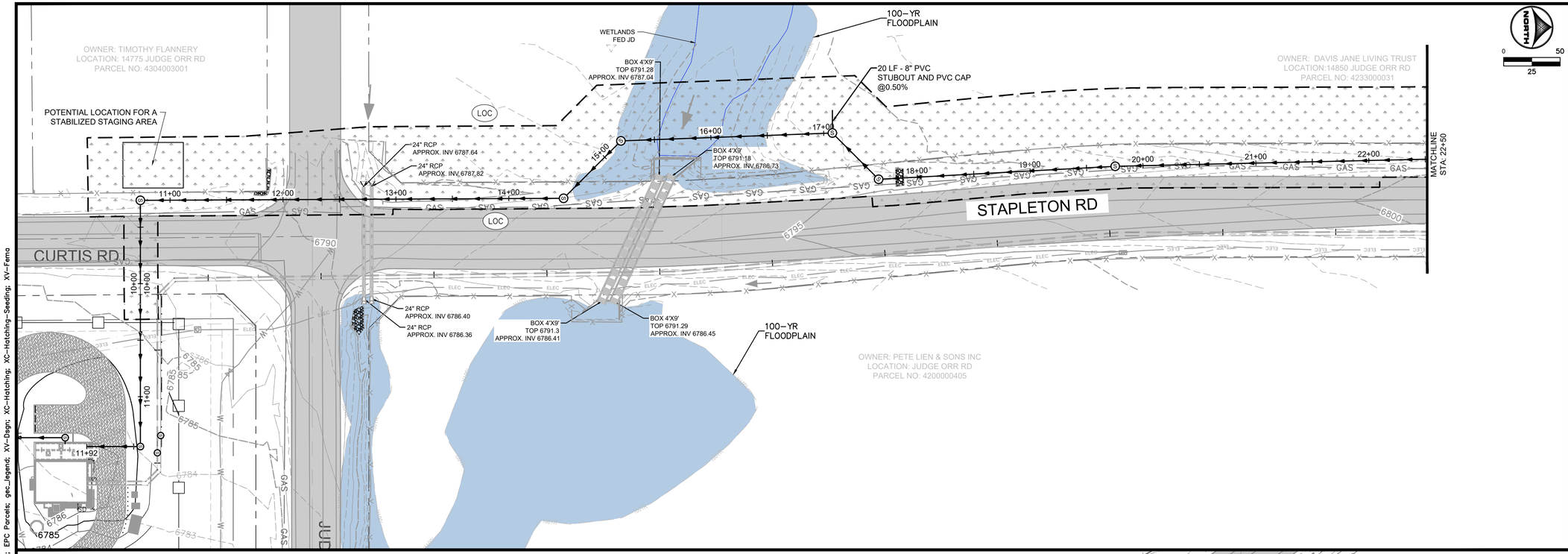
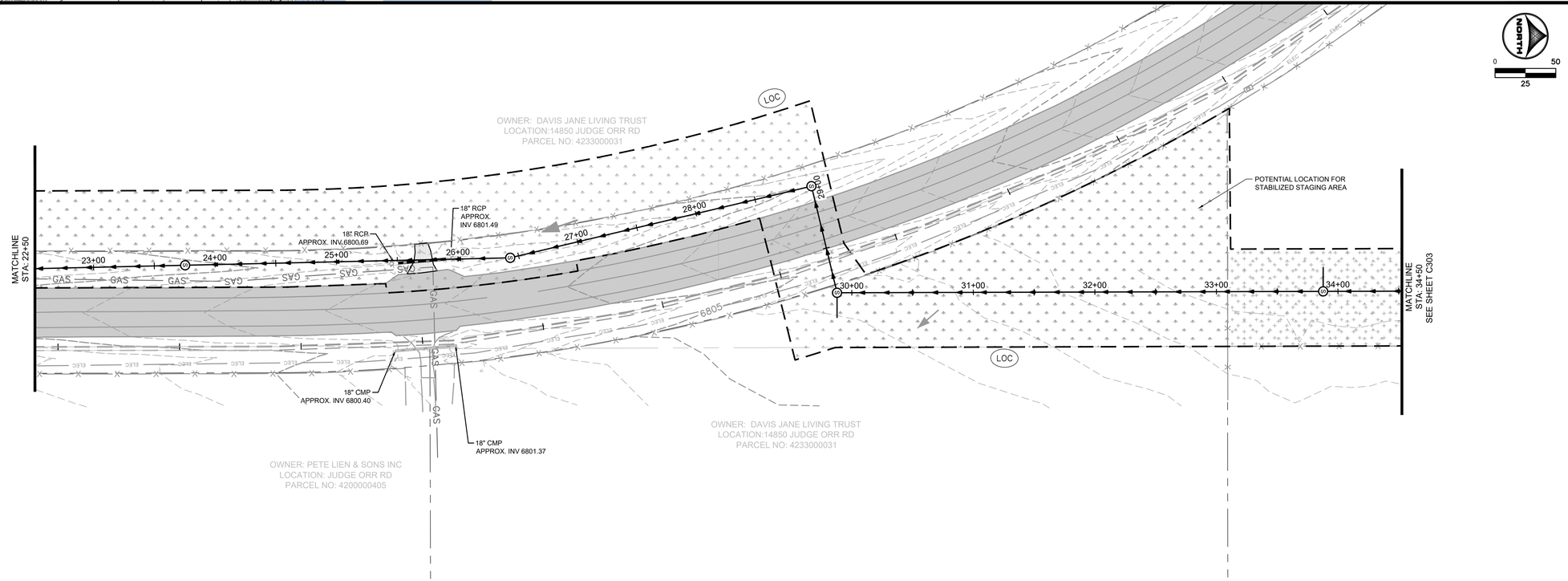
CONSTRUCTION DOCUMENTS

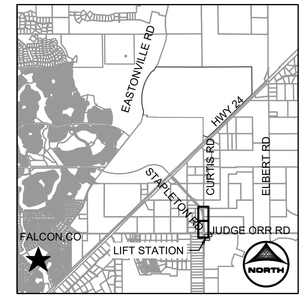
EROSION CONTROL INITIAL-INTERIM PLAN

SHEET C304

HR GREEN Xrefs: XV-Row; XV-Util; vgt-1-dh01-Ls; XC-Lift-Station; XC-Electrical; XC-Driveway; XC-Util; P&P_Key; XC-Dsgn; XC-Initial-EC; 01-DC-Son-Gr; XC-Con-Gr; XC-Row; EPC Parcels; gec_legend; XV-Dsgn; XC-Hatching; XC-Hatching-Seeding; XV-Femo




KEYMAP

GENERAL NOTES:

1. CONTRACTOR SHALL REPLACE THE AREA OF CONSTRUCTION TO THE EXISTING, PRE-CONSTRUCTION GRADE.

GEC LEGEND:

| | |
|---|---|
| CWA | CONCRETE WASHOUT AREA |
| ED/DS | EARTH DIKE & DRAINAGE SWALE |
| IP | INLET PROTECTION |
| CIP | CULVERT INLET PROTECTION |
| SF | SILT FENCE |
| EL | EROSION CONTROL LOG |
| SSA | STABILIZED STAGING AREA |
| SP | STOCKPILE PROTECTION |
| VTC | MUD MATS/VEHICLE TRACKING CONTROL |
| LOC | LIMITS OF CONSTRUCTION/DISTURBANCE |
| PSM | PERMANENT SEEDING AND MULCHING UPLAND SEED MIX |
| PSM | PERMANENT SEEDING AND MULCHING WETLAND SEED MIX |
| PSM | PERMANENT SEEDING AND MULCHING SPECIAL SEED MIX #1, SEE NOTES |
| PT | PORTABLE TOILET |
| CD | STRAW BALE CHECK DAM |
| RCD | ROCK CHECK DAM |
| ECB | EROSION CONTROL BLANKET |
| NS | NEW SURFACING |
| | EX FLOW DIRECTION |
| | EX FLOODPLAIN |

811 UNCC CALL BEFORE YOU DIG 811 OR 1-800-922-1987 Utility Notification Center of Colorado

DRAWN BY: ACH | JOB DATE: 7/16/2024
APPROVED: JF | JOB NUMBER: 201662.07
CAD DATE: 1/7/2025
CAD FILE: \\hrgreen.com\HRG\Data\2020\201662.07\CAD\Dwgs\C\Gravity_Line\Gr_GESC_Plans - FINAL

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PEYTON, CO

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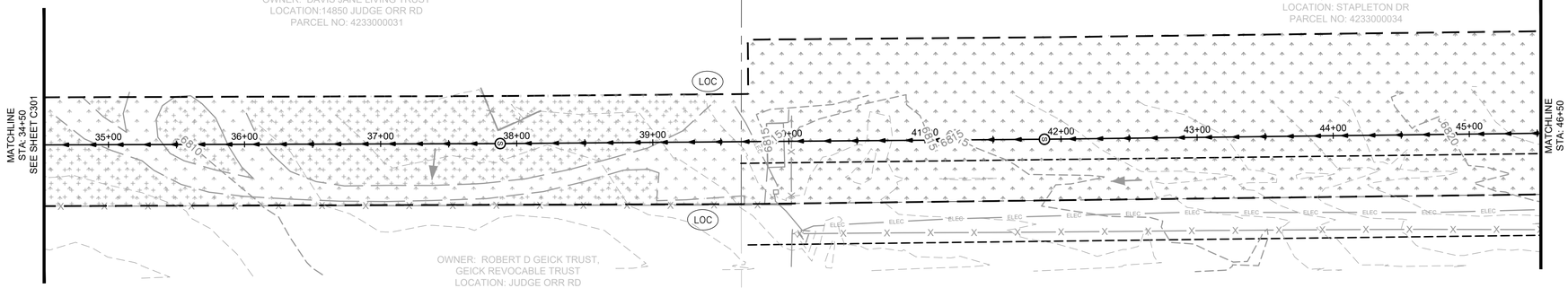
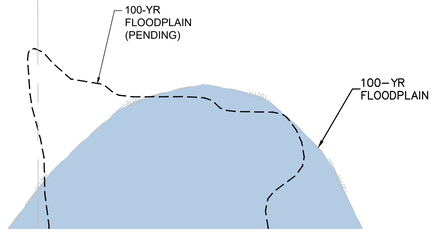
CONSTRUCTION DOCUMENTS

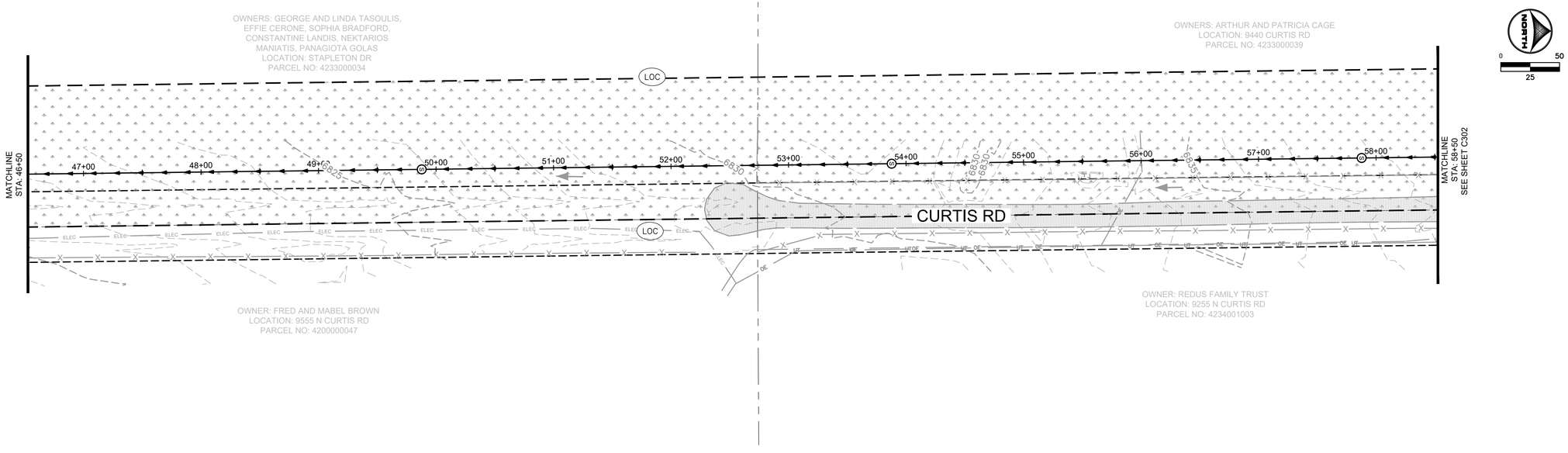
EROSION CONTROL FINAL PLAN

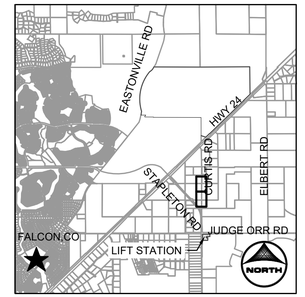
SHEET C305

HR GREEN Xrefs: XV-Row; XV-Utl; xg1-1-dh01-Ls; XC-Lift-Station; XC-Electricol; XC-Driveway; XC-Utl; P&P_Key; XC-Dsgn; XC-Initoll-EC; 01-DC-Son-Gr; XC-Row; EPC Parcels; gec_Jegend; XV-Dsgn; XC-Hatching; XC-Hatching-Seeding; XV-Femo

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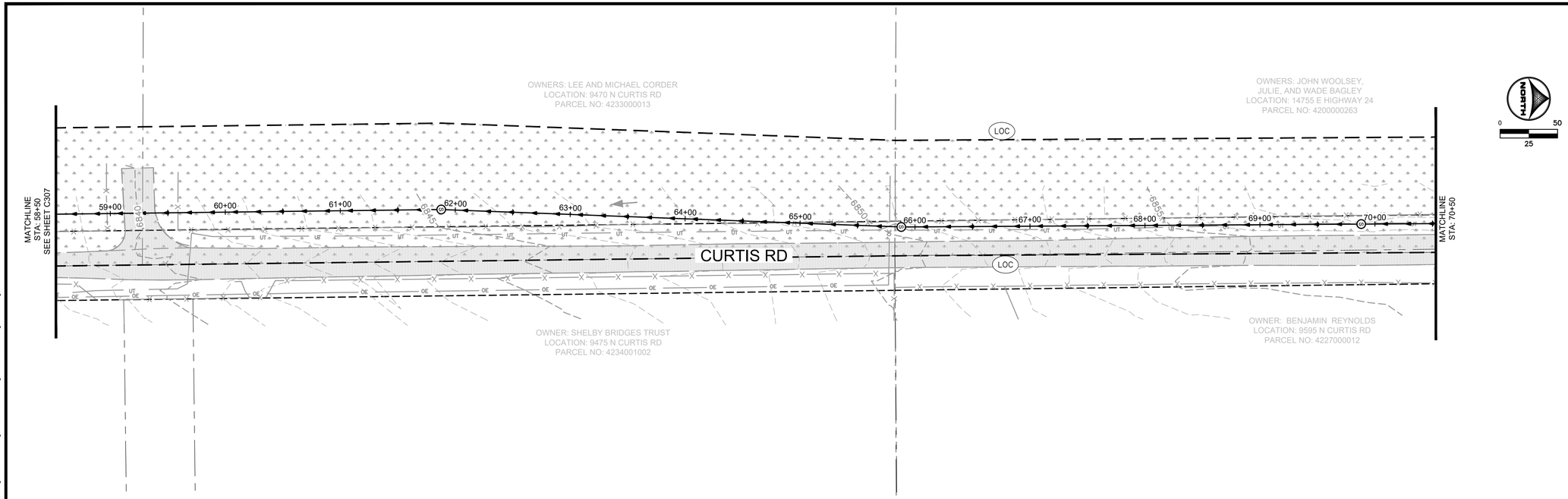
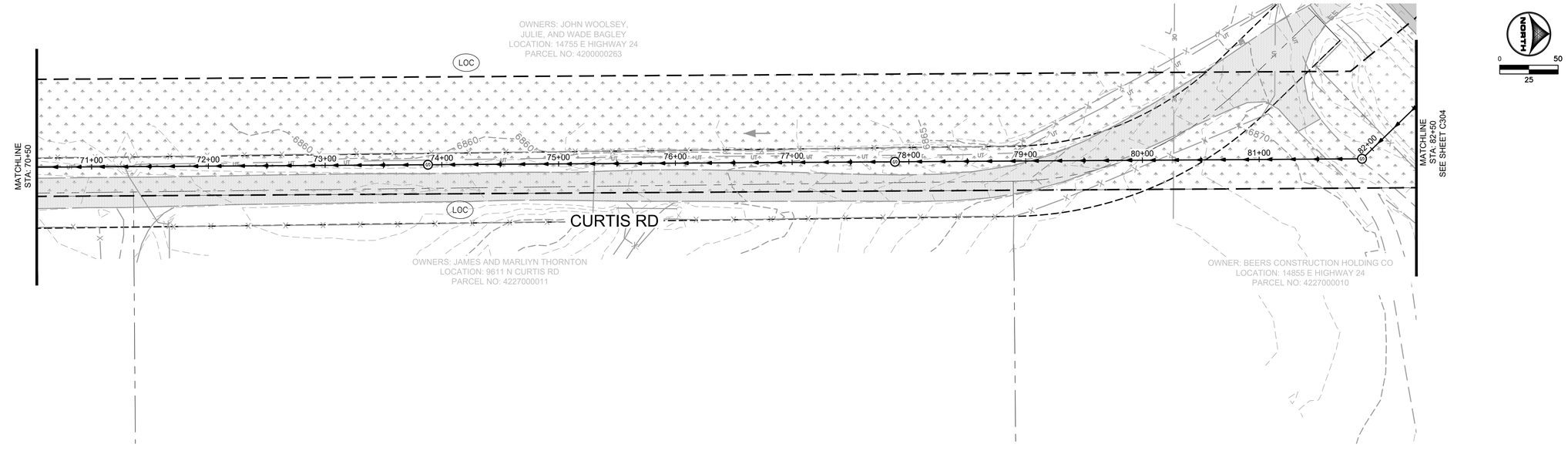
CONSTRUCTION DOCUMENTS

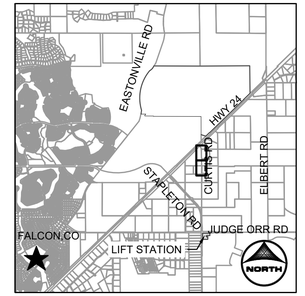
EROSION CONTROL FINAL PLAN

SHEET C306

HR GREEN Xrefs: XV-Row; XV-Util; xgl-1-db01-Ls; XC-Lift-Station; XC-Electrical; XC-Driveway; XC-Util; P&P_Key; XC-Dsgn; XC-Initial-EC; 01-DC-Sum-Gr; XC-Row; EPC Parcels; gec_legend; XV-Dsgn; XC-Hatching; XC-Hatching-Seeding; XV-Femo

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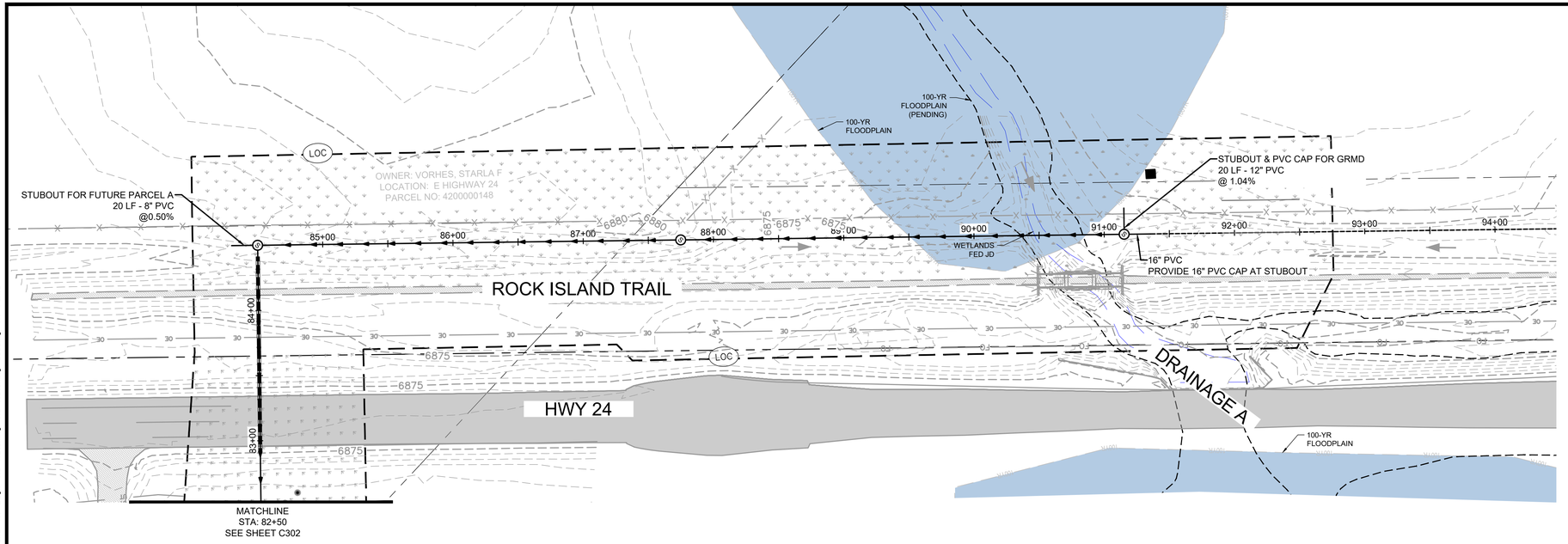
CONSTRUCTION DOCUMENTS

EROSION CONTROL FINAL PLAN

SHEET C307

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CONSTRUCTION DOCUMENTS

EROSION CONTROL FINAL PLAN

SHEET
C308

HR GREEN Xrefs: XV-Row; XV-Util; vgl-1-dh01-Ls; XC-Lift-Station; XC-Electrical; XC-Driveway; XC-Util; P&P_Key; XC-Dsgn; XC-Initial-EC; 01-DC-Son-Gr; XC-Con-Gr; XC-Row; EPC Parcels; gec_legend; XV-Dsgn; XC-Hatching; XC-Hatching-Seeding; XV-Femo

Single Lot Access Vehicle Tracking Control Mats

## Single Lot Access VTC (Mud Mats)

**Description and Purpose**
A stabilized construction access is defined by a point of entrance/exit to a construction site that is stabilized to reduce the tracking of mud and dirt onto public roads by construction vehicles.

**Suitable Applications**
Use at construction sites:
- Where dirt or mud can be tracked onto public roads.
- Where a single family lot needs a temporary access point.

**Limitations**
- Entrances and exits require periodic cleaning and maintenance.
- This BMP should be used in conjunction with street sweeping on adjacent public right of way
- Entrances and exits should be constructed on level ground only or sloping away from paved surfaces.

**Implementation**
- Construct on level ground or sloping down and away from paved surfaces where possible.
- For individual lots VTC perimeter may be reduced to minimum 8' x 15' due to space limitation. This is for access to single family lots only.)
- Limit the points of entrance/exit to the construction site.
- Properly grade each construction entrance/exit to prevent runoff from leaving the construction site.
- Route runoff from stabilized entrances/exits through a sediment trapping device before discharge.
- Require that all employees, subcontractors, and suppliers to utilize the stabilized construction access when lot access is necessary.
- Educate all employees, subcontractors, and suppliers on keeping vehicles off-site whenever possible.
- Limit access to only access that is absolute

TYPICAL TRENCH DETAIL
FOR PIPE SEGMENTS WITH
1.04% SLOPE OR GREATER
SCALE: N.T.S.

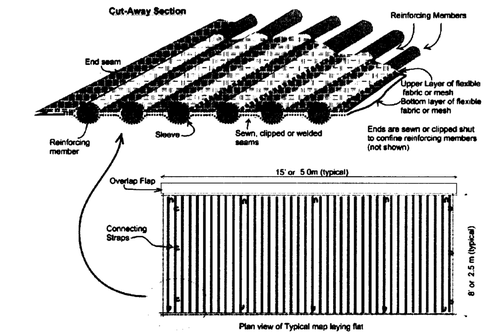
**Inspection and Maintenance**
- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMPs are under way, inspect in accordance with the specified inspection schedule in the site SWMP.
- Visually inspect local roads adjacent to the site daily. Sweep or vacuum to remove visible accumulated sediment.
- Check for damage and repair as needed.
- Remove accumulated sediment as needed.
- Reset and restake as needed.
- Remove any sediment deposited on paved roadways immediately.

TYPICAL TRENCH DETAIL
FOR PIPE SEGMENTS WITH
LESS THAN 1.04% SLOPE
SCALE: N.T.S.

## Lot Access-VTC (mud mats)

**AGES Mud Mat Specifications**

Each mat is made up of a double layer of high strength woven fabric that is stitched in such a way to encapsulate the reinforcing members that run perpendicular to the direction of traffic. These reinforcing ribs are secured individually within each pocket. There are approx. 24-26 pockets that each holds 1 bamboo post of approx. 2" diameter. This combination of reinforcing member and confining fabric result in a portable mat that can be rolled up for transport and ease of deployment. AGES Mud Mats can be used in construction site access, agriculture, golf & parks, other soft or sensitive ground condition areas where vehicle access is required.



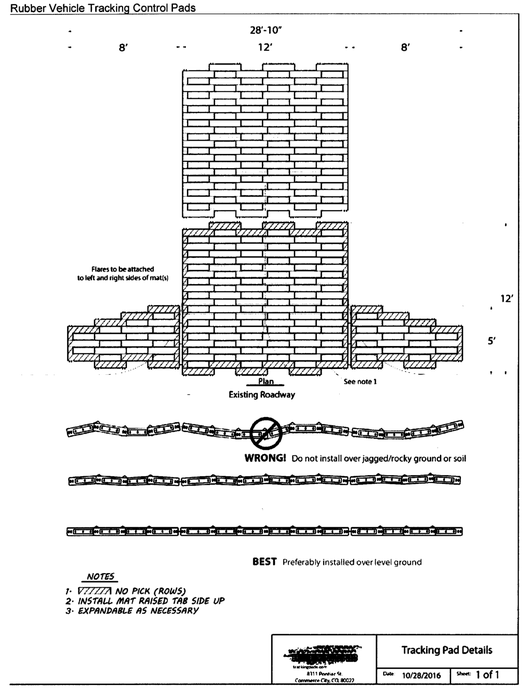

| PROPERTY | TEST PROCEDURE | VALUE |
|---|---|---|
| Grab Tensile Strength | ASTM D4632 | 502.6 lbs |
| Apparent Breaking Elongation | ASTM D4632 | 25% / 18% |
| Trapezoid Tearing Strength | ASTM D4533 | 607 lbs |
| Puncture Resistance | ASTM D4833 | 374.2 lbs |
| Mullen Burst | ASTM D3786 | 466.85 psi |
| Apparent Opening Size | ASTM D4751 | 70 US Sieve / 0.212mm |
| Constant Head Permitivity | ASTM D4491 | .20 / 0.16 gpm/sf |
| Wide Width Tensile | ASTM D4595 | 685.7 lbs /in |
| Material | Woven Geotextile | 100% Polypropylene |

| APPROXIMATE DIMENSIONS PER MAT | |
|---|---|
| Size Deployed (approx.) | 15' x 8' |
| Shipping Size (rolled) | 15 dia x 8.5 long |
| Weight (approx.) | 160 lbs |

**5 carabineer clips for each mat (Side connection and end connection straps)**

Source: AGES Mud Mats

Rubber Vehicle Tracking Control Pads




| | |
|---|---|
| 8111 Preston St. Commerce City, CO, 80022 | Tracking Pad Details |
| | Date: 10/28/2016 Sheet: 1 of 1 |

Synthetic Sediment Control Log with Tailpiece

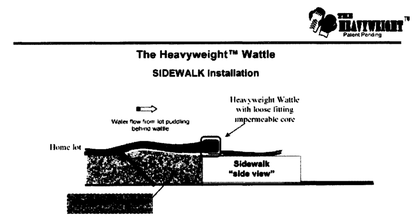
## The Heavyweight Wattle

**Description and Purpose**
A synthetic sediment control log. Outer cover of silt filtration fabric surrounding an inner core of full rebound foam coverd by a 6 mil plastic sleeve. Designed to be used where hard surfaces contact ditrubed areas for pounding and on-site soil retention.

**Suitable Applications** — The Heavyweight Wattle may be suitable:
- Where hard surfaces contact soil.

**Limitations**
- The Heavyweight Wattle is not effective when the flap is not properly pinned and backfilled.
- The Heavyweight Wattle has a limited sediment capture zone and should only be used for lower volume sheet flows.
- The Heavyweight Wattle is not a substitute for adequate tracking pads and construction egress.

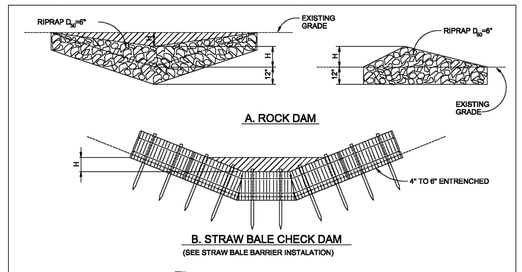
**Installation**




**While crews remove concrete forms, install wattle immediately afterwards.**

**Wattle to be installed upon removal of concrete forms:**
1. Lay the Heavyweight wattle directly on top of sidewalk, dropping tail of wattle behind sidewalk area.
2. Connect wattle together to form a continuous barrier.
3. Pin tail section into soil with fasteners behind sidewalk approximately every three feet.
4. Overlap the connection points and use two fasteners in this area.
5. Back-fill area behind sidewalk.
6. Site in compliance.

***Fastener Recommendation:*** *Use 60d nails or The Heavyweight wattle pins*




## CHECK DAM
NTS

### CHECK DAM NOTES

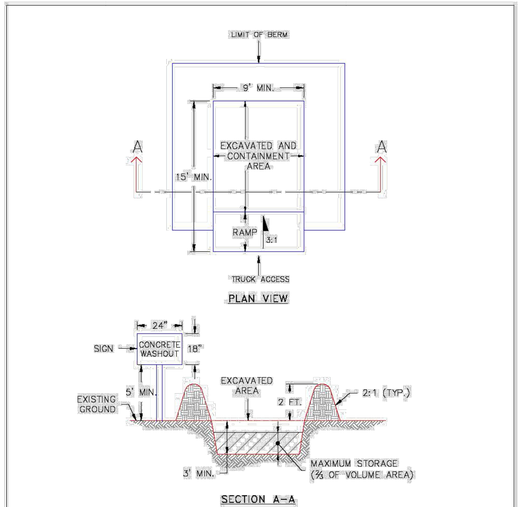
**INSTALLATION REQUIREMENTS**

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

**MAINTENANCE REQUIREMENTS**

1. REGULAR INSPECTIONS ARE TO BE MADE OF ALL CHECK DAMS, ESPECIALLY AFTER STORM EVENTS.
2. REPLACE STONE AS NECESSARY TO MAINTAIN THE CORRECT HEIGHT OF THE DAM.
3. ACCUMULATED SEDIMENT AND DEBRIS IS TO BE REMOVED FROM BEHIND THE DAMS AFTER EACH STORM OR WHEN 1/2 OF THE ORIGINAL HEIGHT OF THE DAM IS REACHED.
3. CHECK DAMS ARE TO REMAIN IN PLACE AND OPERATIONAL UNTIL THE DRAINAGE AREA AND CHANNEL ARE PERMANENTLY STABILIZED.
4. WHEN CHECK DAMS ARE REMOVED THE CHANNEL LINING OR VEGETATION IS TO BE RESTORED.

| | |
|---|---|
| City of Colorado Springs Stormwater Quality | Figure CD-1 Check Dam Construction Detail and Maintenance Requirements |

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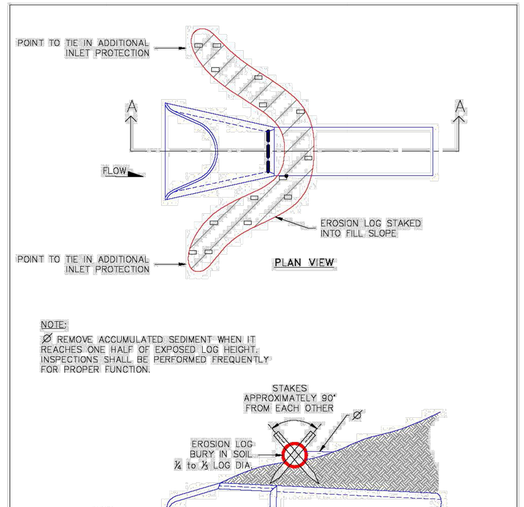
| 1/1/08 DATE APPROVED: John A. McCarty DEPARTMENT OF TRANSPORTATION | Concrete Washout Structure Standard Drawing | EL PASO COUNTY DEPARTMENT OF TRANSPORTATION |
| | REVISION DATE: 7/17/07 FILE NAME: SD_3-84 | |

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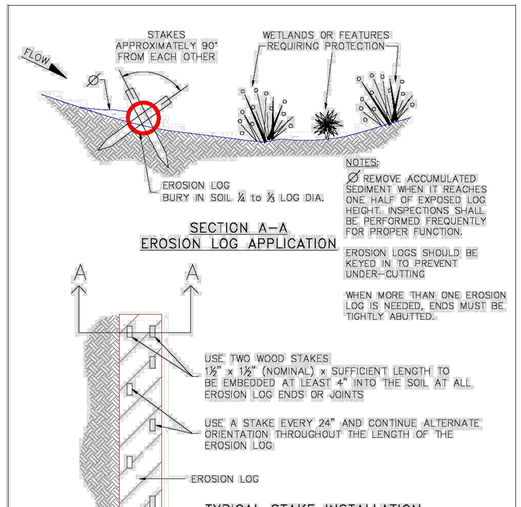
|---|---|---|
| 1/1/08 DATE APPROVED: John A. McCarty DEPARTMENT OF TRANSPORTATION | Culvert Inlet and Outlet Protection Erosion Logs Above Inlets and Outlets For Slopes 3:1 or Steeper Standard Drawing | EL PASO COUNTY DEPARTMENT OF TRANSPORTATION |
| | REVISION DATE: 7/17/07 FILE NAME: SD_3-86 | |




| | | |
|---|---|---|
| 1/1/08 DATE APPROVED: John A. McCarty DEPARTMENT OF TRANSPORTATION | Erosion Log Barrier Standard Drawing | EL PASO COUNTY DEPARTMENT OF TRANSPORTATION |
| | REVISION DATE: 7/17/07 FILE NAME: SD_3-87 | |

PRELIMINARY DESIGN NOT FOR CONSTRUCTION

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COLORADO SPRINGS CO 80920
PHONE: 719.300.4140
FAX: 713.965.0044


GRANDVIEW RESERVE M.D. -
INTERCEPTOR SEWER
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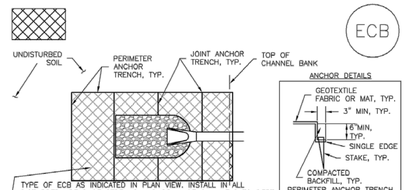
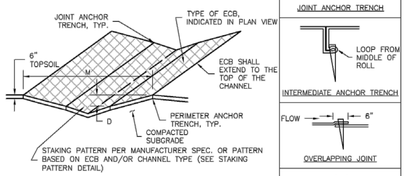
CONSTRUCTION DOCUMENTS

EROSION CONTROL DETAILS

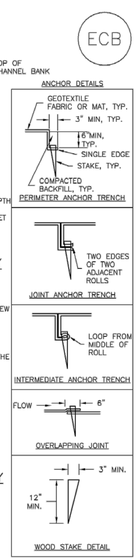
SHEET
C309




ECB–1. PIPE OUTLET TO DRAINAGEWAY

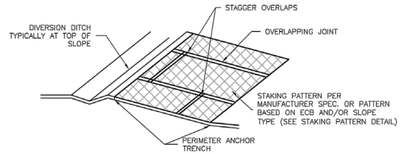



ECB–2. SMALL DITCH OR DRAINAGEWAY

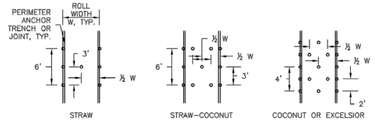




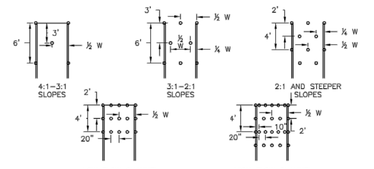



ECB–3. OUTSIDE OF DRAINAGEWAY




STAKING PATTERNS BY ECB TYPE




STAKING PATTERNS BY SLOPE OR CHANNEL TYPE





EROSION CONTROL BLANKET INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –LOCATION OF ECB.
   –TYPE OF ECB (STRAW, STRAW–COCONUT, COCONUT, OR EXCELSIOR).
   –AREA, A, IN SQUARE YARDS OF EACH TYPE OF ECB.

2. 100% NATURAL AND BIODEGRADABLE MATERIALS ARE PREFERRED FOR RECPs, ALTHOUGH SOME JURISDICTIONS MAY ALLOW OTHER MATERIALS IN SOME APPLICATIONS.

3. IN AREAS WHERE ECBs ARE SHOWN ON THE PLANS, THE PERMITTEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING AND MULCHING. SUBGRADE SHALL BE SMOOTH AND MOIST PRIOR TO ECB INSTALLATION AND THE ECB SHALL BE IN FULL CONTACT WITH SUBGRADE. NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.

4. PERIMETER ANCHOR TRENCH SHALL BE USED ALONG THE OUTSIDE PERIMETER OF ALL BLANKET AREAS.

5. JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL ECBs EXCEPT STRAW WHICH MAY USE AN OVERLAPPING JOINT.

6. INTERMEDIATE ANCHOR TRENCH SHALL BE USED AT SPACING OF ONE–HALF ROLL LENGTH FOR COCONUT AND EXCELSIOR ECBs.

7. OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER FOR ECBs ON SLOPES.

8. MATERIAL SPECIFICATIONS OF ECBs SHALL CONFORM TO TABLE ECB–1.

9. ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING ECBS SHALL BE RESEEDED AND MULCHED.

10. DETAILS ON DESIGN PLANS FOR MAJOR DRAINAGEWAY STABILIZATION WILL GOVERN IF DIFFERENT FROM THOSE SHOWN HERE.

TABLE ECB–1. ECB MATERIAL SPECIFICATIONS

| TYPE | COCONUT CONTENT | STRAW CONTENT | EXCELSIOR CONTENT | RECOMMENDED NETTING** |
|---|---|---|---|---|
| STRAW* | – | 100% | – | DOUBLE/ NATURAL |
| STRAW–COCONUT | 30% MIN | 70% MAX | – | DOUBLE/ NATURAL |
| COCONUT | 100% | – | – | DOUBLE/ NATURAL |
| EXCELSIOR | – | – | 100% | DOUBLE/ NATURAL |

*STRAW ECBs MAY ONLY BE USED OUTSIDE OF STREAMS AND DRAINAGE CHANNEL.
**ALTERNATE NETTING MAY BE ACCEPTABLE IN SOME JURISDICTIONS





EROSION CONTROL BLANKET MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. ECBs SHALL BE LEFT IN PLACE TO EVENTUALLY BIODEGRADE, UNLESS REQUESTED TO BE REMOVED BY THE LOCAL JURISDICTION.

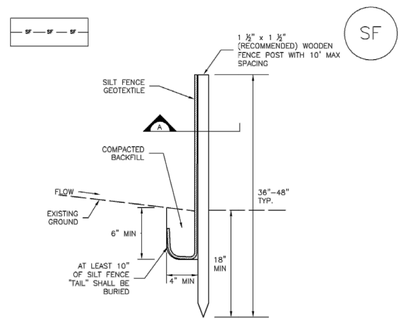
5. ANY ECB PULLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE REPAIRED OR REINSTALLED. ANY SUBGRADE AREAS BELOW THE GEOTEXTILE THAT HAVE ERODED TO CREATED A VOID UNDER THE BLANKET, OR THAT REMAIN DEVOID OF GRASS SHALL BE REPAIRED, RESEEDED AND MULCHED AND THE ECB REINSTALLED.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

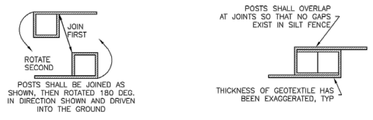
(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO AND TOWN OF PARKER COLORADO, NOT AVAILABLE IN AUTOCAD)








SILT FENCE




SECTION A

SF–1. SILT FENCE





SILT FENCE INSTALLATION NOTES

1. SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2–5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.

2. A UNIFORM 6" X 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE. NO ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.

3. COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.

4. SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.

5. SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.

6. AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "J–HOOK." THE "J–HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' – 20').

7. SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

SILT FENCE MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".

5. REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.

6. SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.

7. WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.



PRELIMINARY DESIGN
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DRAWN BY: JMM JOB DATE: 9/10/2024
APPROVED: GP JOB NUMBER: 201662.07
CAD DATE: 1/7/2025
CAD FILE: \\hrgreen.com\HRG\Data\2020\201662.07\CAD\Dwgs\C\Gravity_Line\Gr_GESC_Details

BAR IS ONE INCH ON OFFICIAL DRAWINGS.
0 1"
IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.

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HR GREEN - COLORADO SPRINGS
1975 RESEARCH PARKWAY | SUITE 230
COLORADO SPRINGS CO 80920
PHONE: 719.300.4140
FAX: 713.965.0044

GRANDVIEW RESERVE M.D. -
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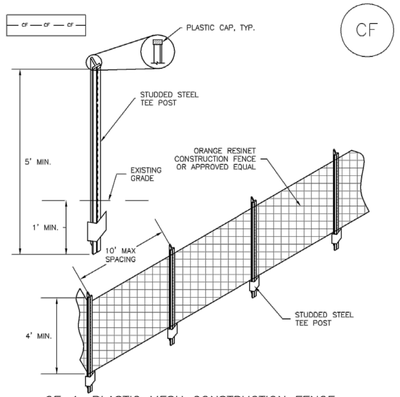
CONSTRUCTION DOCUMENTS

EROSION CONTROL DETAILS

SHEET
C310




CF–1. PLASTIC MESH CONSTRUCTION FENCE

CONSTRUCTION FENCE INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –LOCATION OF CONSTRUCTION FENCE.

2. CONSTRUCTION FENCE SHOWN SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

3. CONSTRUCTION FENCE SHALL BE COMPOSED OF ORANGE, CONTRACTOR–GRADE MATERIAL THAT IS AT LEAST 4' HIGH. METAL POSTS SHOULD HAVE A PLASTIC CAP FOR SAFETY.

4. STUDDED STEEL TEE POSTS SHALL BE UTILIZED TO SUPPORT THE CONSTRUCTION FENCE. MAXIMUM SPACING FOR STEEL TEE POSTS SHALL BE 10'.

5. CONSTRUCTION FENCE SHALL BE SECURELY FASTENED TO THE TOP, MIDDLE, AND BOTTOM OF EACH POST.





CONSTRUCTION FENCE MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. CONSTRUCTION FENCE SHALL BE REPAIRED OR REPLACED WHEN THERE ARE SIGNS OF DAMAGE SUCH AS RIPS OR SAGS. CONSTRUCTION FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

5. WHEN CONSTRUCTION FENCES ARE REMOVED, ALL DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION, MAINTENANCE, AND/OR REMOVAL OF THE FENCE SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED, OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)





## Appendix A. Seed Mix Tables

**Upland Native Seed Mixes (drill seed rates)**

**Table A-1. Upland area seed mix – loamy to clay soils**

| Common Name | Scientific Name | Growth Season | Growth Form | % Mix | Lb/ac (PLS[1]) |
|---|---|---|---|---|---|
| **Grasses** | | | | | |
| Blue grama | *Bouteloua gracilis* | Warm | Sod | 25 | 1.8 |
| Sand dropseed | *Sporobolus cryptandrus* | Warm | Bunch | 20 | 0.2 |
| Sideoats grama | *Bouteloua curtipendula* | Warm | Sod | 20 | 6.3 |
| Western wheatgrass | *Pascopyrum smithii* | Cool | Sod | 15 | 8.2 |
| Buffalograss | *Bouteloua dactyloides* | Warm | Sod | 10 | 10.7 |
| Inland saltgrass | *Distichlis spicata* | Warm | Sod | 5 | 0.6 |
| **Herbaceous/Wildflowers** | | | | | |
| Pasture sage | *Artemisia frigida* | | | 1 | 0.01 |
| Blanket flower | *Gaillardia aristata* | | | 1 | 0.5 |
| Prairie coneflower | *Ratibida columnifera* | | | 1 | 0.1 |
| Purple prairieclover | *Dalea (Petalostemum) purpurea* | | | 1 | 0.3 |
| Blue flax | *Linum lewisii* | | | 1 | 0.4 |
| **TOTAL PLS POUNDS/ACRE** | | | | **100** | **29.11** |

[1]PLS = Pure Live Seed – If broadcast seeding, double the rate

**Table A-2. Upland area seed mix – sandy soil**

| Common Name | Scientific Name | Growth Season | Growth Form | % Mix | Lb/ac (PLS[1]) |
|---|---|---|---|---|---|
| **Grasses** | | | | | |
| Switchgrass | *Panicum virgatum* | Warm | Sod/Bunch | 15 | 2.3 |
| Prairie sandreed | *Calamovilfa longifolia* | Warm | Sod | 10 | 2.2 |
| Sideoats grama | *Bouteloua curtipendula* | Warm | Sod | 10 | 3.1 |
| Blue grama | *Bouteloua gracilis* | Warm | Sod | 10 | 0.7 |
| Indian ricegrass | *Oryzopsis hymenoides* | Cool | Bunch | 10 | 4.3 |
| Western wheatgrass | *Pascopyrum smithii* | Cool | Sod | 10 | 5.5 |
| Little bluestem | *Schizachyrium scoparium* | Warm | Bunch | 10 | 2.3 |
| Sand dropseed | *Sporobolus cryptandrus* | Warm | Bunch | 10 | 0.1 |
| Green needlegrass | *Stipa viridula* | Cool | Bunch | 10 | 3.3 |
| **Herbaceous/Wildflowers** | | | | | |
| Pasture sage | *Artemisia frigida* | | | 1 | 0.1 |
| Blanket flower | *Gaillardia aristata* | | | 2 | 0.9 |
| Tansy aster | *Maceranthera tanacetifolia* | | | 2 | 0.2 |
| **TOTAL PLS POUNDS/ACRE** | | | | **100** | **25** |

[1]PLS = Pure Live Seed – If broadcast seeding, double the rate





**Table A-3. Upland/transitional area seed mix – alkali soil**

| Common Name | Scientific Name | Growth Season | Growth Form | % Mix | Lb/ac (PLS[1]) |
|---|---|---|---|---|---|
| Blue grama | *Bouteloua gracilis* | Warm | Sod | 20 | 1.5 |
| Sideoats grama | *Bouteloua curtipendula* | Warm | Sod | 15 | 4.7 |
| Slender wheatgrass | *Elymus trachycaulus* | Cool | Bunch | 15 | 5.7 |
| Alkali sacaton | *Sporobolus airoides* | Warm | Sod/Bunch | 15 | 0.5 |
| Inland saltgrass | *Distichlis spicata* | Warm | Sod | 15 | 1.7 |
| Western wheatgrass | *Pascopyrum smithii* | Cool | Sod | 10 | 5.5 |
| Sand dropseed | *Sporobolus cryptandrus* | Warm | Bunch | 10 | 0.1 |
| **TOTAL PLS POUNDS/ACRE** | | | | **100** | **19.7** |

[1]PLS = Pure Live Seed – If broadcast seeding, double the rate





**Wetland Native Seed Mixes**

**Table A-8. Wetland seed mix – loamy to sandy soils**
(Recommended for detention ponds and less eroding wetland areas.)

| Common Name | Scientific Name | Growth Season | Growth Form | % Mix | Wetland Indicator* | Lb/ac (PLS[1]) |
|---|---|---|---|---|---|---|
| **Grasses and Herbaceous Species** | | | | | | |
| American Sloughgrass | *Beckmannia syzigachne* | Cool | Sod | 15 | OBL | 0.8 |
| Prairie cordgrass | *Spartina pectinata* | Warm | Sod | 15 | FACW | 4.6 |
| Switchgrass | *Panicum virgatum* | Warm | Sod/Bunch | 15 | FAC | 2.3 |
| Western wheatgrass | *Pascopyrum smithii* | Cool | Sod | 10 | FACU | 5.5 |
| Fowl mannagrass | *Glyceria striata* | Cool | Sod | 10 | OBL | 3.3 |
| Hardstem bulrush | *Scirpus acutus* | | | 10 | OBL | 1.6 |
| Baltic rush | *Juncus balticus* | | | 10 | OBL | 0.1 |
| Creeping spikerush | *Eleocharis palustris* | | | 10 | OBL | 1.0 |
| **Wildflowers** | | | | | | |
| Blue vervain | *Verbena hastata* | | | 2.5 | FACW | 0.1 |
| Nuttall's sunflower | *Helianthus nuttallii* | | | 2.5 | FAC | 0.5 |
| **TOTAL PLS POUNDS/ACRE** | | | | **100** | | **19.8** |

[1]PLS = Pure Live Seed – If broadcast seeding, double the rate

**Table A-9. Wetland seed mix – clay and alkali soils**
(Recommended for detention ponds and wetland areas.)

| Common Name | Scientific Name | Growth Season | Growth Form | % Mix | Wetland Indicator* | Lb/ac (PLS[1] |
|---|---|---|---|---|---|---|
| **Grasses and Herbaceous Species** | | | | | | |
| Alkali sacaton | *Sporobolus airoides* | Warm | Bunch | 10 | FAC | 0.4 |
| Inland saltgrass | *Distichlis spicata* | Warm | Sod | 10 | FACW | 1.2 |
| Nuttall's alkaligrass | *Puccinellia nuttalliana* | Cool | Bunch | 10 | OBL | 0.2 |
| Prairie cordgrass | *Spartina pectinata* | Warm | Sod | 10 | FACW | 3.0 |
| Slender wheatgrass | *Elymus trachycaulus spp.* | Cool | Bunch | 10 | FACU | 3.8 |
| Western wheatgrass | *Pascopyrum smithii* | Cool | Sod | 10 | FACU | 5.5 |
| Fowl mannagrass | *Glyceria striata* | Cool | Sod | 10 | OBL | 3.3 |
| Hardstem bulrush | *Scirpus acutus* | | | 10 | OBL | 1.6 |
| Baltic rush | *Juncus balticus* | | | 10 | OBL | 0.1 |
| Creeping spikerush | *Eleocharis palustris* | | | 10 | OBL | 1.0 |
| **TOTAL PLS POUNDS/ACRE** | | | | | | **20.1** |

[1]PLS = Pure Live Seed – If broadcast seeding, double the rate
Note: Wildflowers species not recommended for clay or alkali soils.

**Wetland Indicator Key for Tables A-8 and A-9:**
FAC = Facultative – Equally occurs in both wetlands and uplands.
FACU = Facultative Upland – Occurs mostly in uplands, but can occur in wetlands about 1/3 of the time.
FACW = Facultative Wetlands – Occurs mostly in wetlands, but can occur in uplands about 1/3 of the time.
OBL = Obligate Wetlands – Almost always occurs in wetlands.
UPL = Uplands – Almost always occurs in uplands.



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BAR IS ONE INCH ON OFFICIAL DRAWINGS.
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IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.

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HR GREEN - COLORADO SPRINGS
1975 RESEARCH PARKWAY | SUITE 230
COLORADO SPRINGS CO 80920
PHONE: 719.300.4140
FAX: 713.965.0044

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EROSION CONTROL DETAILS

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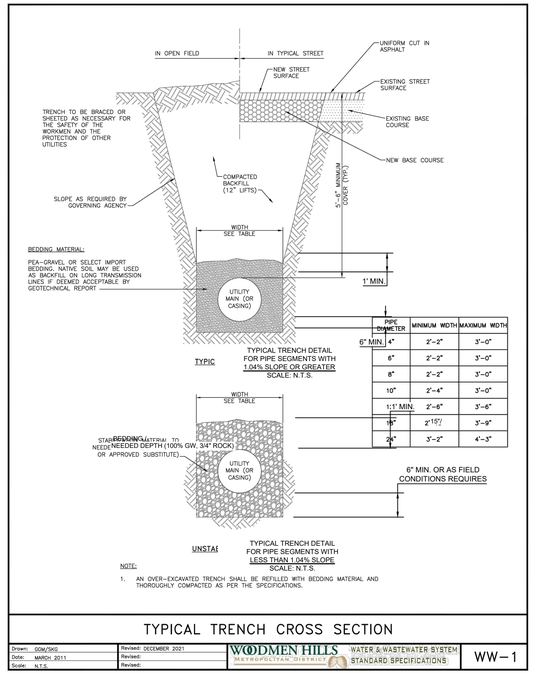
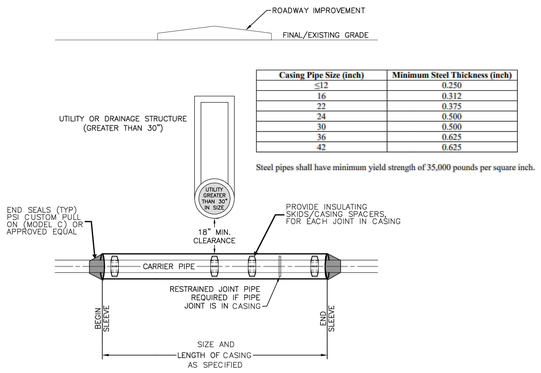



## TYPICAL TRENCH CROSS SECTION

| | | | |
|---|---|---|---|
| Drawn: GGM/SHG | Revised: DECEMBER 2021 | WOODMEN HILLS METROPOLITAN DISTRICT — WATER & WASTEWATER SYSTEM STANDARD SPECIFICATIONS | WW–1 |
| Date: MARCH 2011 | Revised: | | |
| Scale: N.T.S. | Revised: | | |



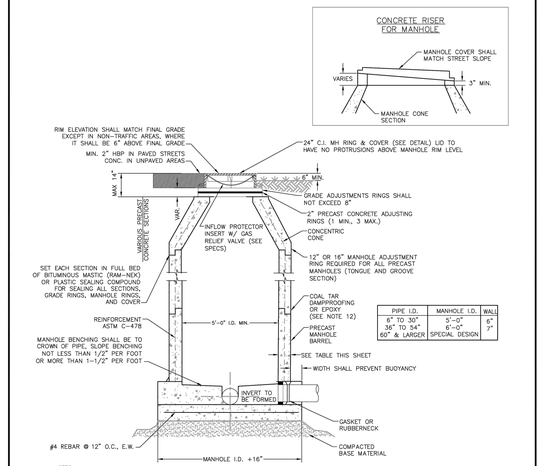

| Casing Pipe Size (inch) | Minimum Steel Thickness (inch) |
|---|---|
| ≤12 | 0.250 |
| 16 | 0.312 |
| 22 | 0.375 |
| 24 | 0.500 |
| 30 | 0.500 |
| 36 | 0.625 |
| 42 | 0.625 |

**Steel pipes shall have minimum yield strength of 35,000 pounds per square inch.**

NOTES:

1. 3/4" ALL-THREAD TO BE USED FROM VALVE TO REVERSE ANCHOR AND FROM UPPER BEND TO VALVE.
2. IF A JOINT IS LOCATED BETWEEN ANY FITTINGS INCORPORATED INTO THE LOWERING, BELL/JOINT RESTRAINTS MUST BE USED.
3. CASING PIPE MUST BE CLEAN AND FREE OF ALL DIRT AND DEBRIS BEFORE INSTALLING CARRIER PIPE AND BEFORE INSTALLING END SEALS.
4. CARRIER PIPE AS SPECIFIED.
5. FURNISH AND INSTALL ONE 17 LB. MAGNESIUM ANODE PER 20 FEET OF CASING PIPE LENGTH.
6. ENTIRE LENGTH OF LOWERING (FROM VERTICAL BEND TO LOWER VERTICAL BEND) SHALL REST ON 18" MINIMUM OF 3/4" ROCK BELOW CASING AND UP TO SPRINGLINE OF CASING AND CARRIER PIPE.

## CASING PIPE DETAIL



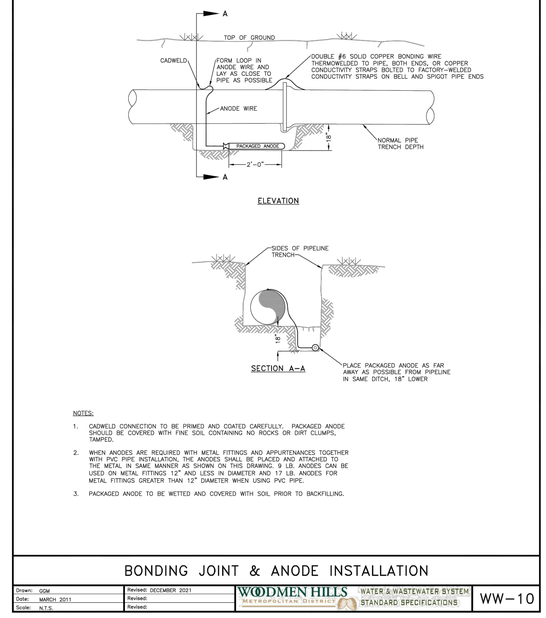

| PIPE I.D. | MANHOLE I.D. | WALL |
|---|---|---|
| 6" TO 30" | 5'-0" | 6" |
| 36" TO 54" | 6'-0" | 7" |
| 60" & LARGER | SPECIAL DESIGN | |

NOTES:

1. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 4,000 PSI @ 28 DAYS AND DESIGNED FOR HS-20 LOADING CONDITIONS.
2. ALL CONCRETE SHALL BE MECHANICALLY VIBRATED.
3. FOR CAST-IN-PLACE MANHOLES, DO NOT DROP CONCRETE A DISTANCE OF MORE THAN 5' UNLESS APPROVED BY THE DISTRICT.
4. 3/4" CRUSHED ROCK REQUIRED UNDER BASE TO A DEPTH OF 6" UP TO SPRINGLINE OF PIPE, 2'-3" RADIUS AROUND BASE.
5. ALL STEPS SHALL BE REMOVED FOLLOWING CONSTRUCTION.
6. STRUCTURAL REINFORCEMENT SHALL COMPLY TO ASTM C-478 AND SHALL BE STAMPED ON THE OUTSIDE OF THE MANHOLE.
7. SHAPING FOR SMOOTH MANHOLE INVERTS MUST BE DONE BY FORMING/SHAPING CONCRETE BASE.
8. PRECAST SECTIONS TO CONFORM TO ASTM C-478.
9. STUB-OUTS SHALL EXTEND A MINIMUM OF 6' PAST MANHOLE O.D. AND BE SATISFACTORILY PLUGGED.
10. CONCRETE MANHOLES MAY BE POURED IN PLACE ONLY WITH PRIOR DESIGN AND INSPECTION APPROVAL.
11. ALL MORTAR GROUT SHALL BE MIXED WITH TYPE V CEMENT.
12. APPLY COAL TAR EPOXY DAMP-PROOFING TO ALL EXTERIOR CONCRETE SURFACES.
13. CENTER REINF. IN BASE, POUR BELOW PIPE O.D. AT FL.
14. ALL EXTERIOR JOINTS SHALL RECEIVE BUTYL RUBBER JOINT WRAP. REFER TO SPECIFICATIONS.
15. MANHOLE RIMS SHALL HAVE A HOLE IN LIEU OF A NOTCH FOR REMOVAL.

## PRECAST MANHOLE

| | | | |
|---|---|---|---|
| Drawn: GGM/SHG | Revised: DECEMBER 2021 | WOODMEN HILLS METROPOLITAN DISTRICT — WATER & WASTEWATER SYSTEM STANDARD SPECIFICATIONS | WW–2 |
| Date: MARCH 2011 | Revised: | | |
| Scale: N.T.S. | Revised: | | |

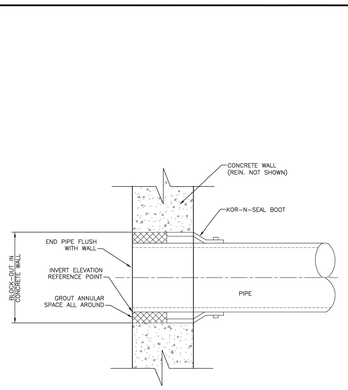



NOTES:

1. CADWELD CONNECTION TO BE PRIMED AND COATED CAREFULLY. PACKAGED ANODE SHOULD BE COVERED WITH FINE SOIL CONTAINING NO ROCKS OR DIRT CLUMPS, TAMPED.
2. WHEN ANODES ARE REQUIRED WITH METAL FITTINGS AND APPURTENANCES TOGETHER WITH PVC PIPE INSTALLATION, THE ANODES SHALL BE PLACED AND ATTACHED TO THE METAL IN SAME MANNER AS SHOWN ON THIS DRAWING. 9 LB. ANODES CAN BE USED ON METAL FITTINGS 12" AND LESS IN DIAMETER AND 17 LB. ANODES FOR METAL FITTINGS GREATER THAN 12" DIAMETER WHEN USING PVC PIPE.
3. PACKAGED ANODE TO BE WETTED AND COVERED WITH SOIL PRIOR TO BACKFILLING.

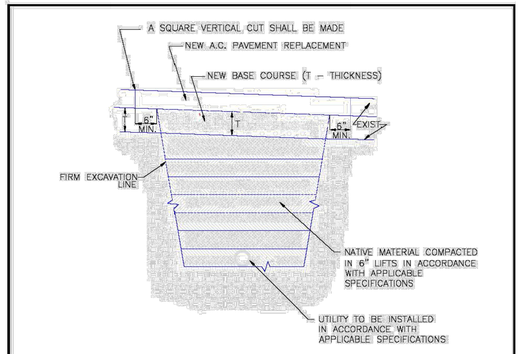
## BONDING JOINT & ANODE INSTALLATION

| | | | |
|---|---|---|---|
| Drawn: GGM | Revised: DECEMBER 2021 | WOODMEN HILLS METROPOLITAN DISTRICT — WATER & WASTEWATER SYSTEM STANDARD SPECIFICATIONS | WW–10 |
| Date: MARCH 2011 | Revised: | | |
| Scale: N.T.S. | Revised: | | |




## KOR–N–SEAL BOOT DETAIL

| | | | |
|---|---|---|---|
| Drawn: GGM | Revised: DECEMBER 2021 | WOODMEN HILLS METROPOLITAN DISTRICT — WATER & WASTEWATER SYSTEM STANDARD SPECIFICATIONS | WW–16 |
| Date: MARCH 2011 | Revised: | | |
| Scale: N.T.S. | Revised: | | |

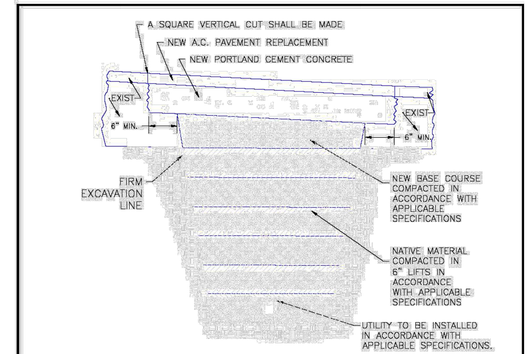



NOTES:

1. THIS DETAIL MAY BE USED FOR PAVEMENT CUTS LESS THAN 200 SQ. FT.
2. EXISTING PAVEMENT MAY BE ROUGH CUT INITIALLY IN CONJUNCTION WITH TRENCHING.
3. A SQUARE, VERTICAL CUT SHALL BE MADE IN THE EXISTING A.C. PAVEMENT AFTER PLACEMENT OF BACKFILL PRIOR TO PAVEMENT REPLACEMENT.
4. THICKNESS OF NEW A.C. PAVEMENT REPLACEMENT SHALL MATCH EXISTING (4" MIN.)
5. THICKNESS OF NEW BASE COURSE SHALL BE MINIMUM OF 6" OR EQUAL TO EXISTING, WHICHEVER IS GREATER.

SCALE: NOT TO SCALE

| | | |
|---|---|---|
| 8/11/11 DATE APPROVED: André P. Brackin DEPARTMENT OF TRANSPORTATION | Utility Trench Repair Detail Asphalt Pavement Standard Drawing | EL PASO COUNTY DEPARTMENT OF TRANSPORTATION |
| | REVISION DATE: 11/10/04 | FILE NAME: SD_4-20 |



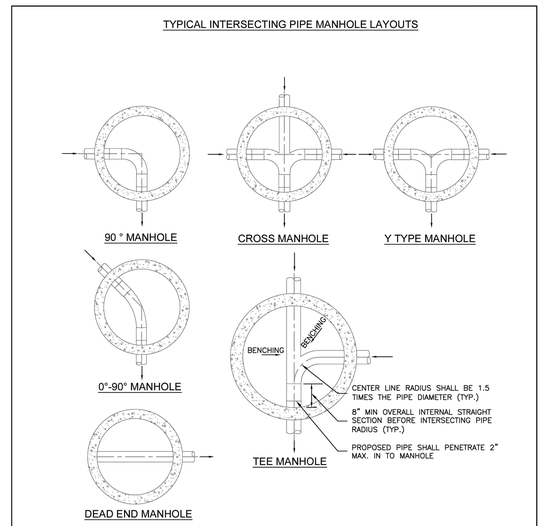

NOTES

1. THIS DETAIL MAY BE USED FOR PAVEMENT CUT LESS THAN 200 SQ. FT.
2. EXISTING PAVEMENT MAY BE ROUGH CUT INITIALLY IN CONJUNCTION WITH TRENCHING.
3. A SQUARE, VERTICAL CUT SHALL BE MADE IN THE EXISTING A.C. PAVEMENT AFTER PLACEMENT OF BACKFILL AND PRIOR TO PAVEMENT REPLACEMENT.
4. THICKNESS OF NEW A.C. PAVEMENT REPLACEMENT SHALL MATCH EXISTING.
5. THICKNESS OF PORTLAND CEMENT CONCRETE SHALL BE A MINIMUM OF 6" WITH A 4000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
6. THICKNESS OF NEW BASE COURSE SHALL BE A MINIMUM OF 6" WHEN THE EXISTING BASE COURSE EXCEEDS 12" IN DEPTH. STREETS WITH LESS THAN 12" OF EXISTING BASE COURSE REQUIRE NO NEW BASE COURSE.

SCALE: NOT TO SCALE

| | | |
|---|---|---|
| 8/11/11 DATE APPROVED: André P. Brackin DEPARTMENT OF TRANSPORTATION | Utility Trench Repair Detail Newly Overlayed Pavement Standard Drawing | EL PASO COUNTY DEPARTMENT OF TRANSPORTATION |
| | REVISION DATE: 11/10/04 | FILE NAME: SD_4-21 |

## TYPICAL INTERSECTING PIPE MANHOLE LAYOUTS




| | | |
|---|---|---|
| Colorado Springs Utilities — It's how we're all connected | TYPICAL MANHOLE LAYOUTS AND INTERSECTIONS | C3–2 DATED 5/2015 |

| | | | |
|---|---|---|---|
| DRAWN BY: JMM | JOB DATE: 9/10/2024 | BAR IS ONE INCH ON OFFICIAL DRAWINGS. 0 — 1" IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY. | |
| APPROVED: GP | JOB NUMBER: 201662.07 | | |
| CAD DATE: 1/7/2025 | | | |
| CAD FILE: \\hrgreen.com\HRG\Data\2020\201662.07\CAD\Dwgs\C\Gravity_Line\Gr_Details | | | |

| NO. | DATE | BY | REVISION DESCRIPTION |
|---|---|---|---|
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| | | | |

HRGreen
HR GREEN - COLORADO SPRINGS
1975 RESEARCH PARKWAY | SUITE 230
COLORADO SPRINGS CO 80920
PHONE: 719.300.4140
FAX: 713.965.0044

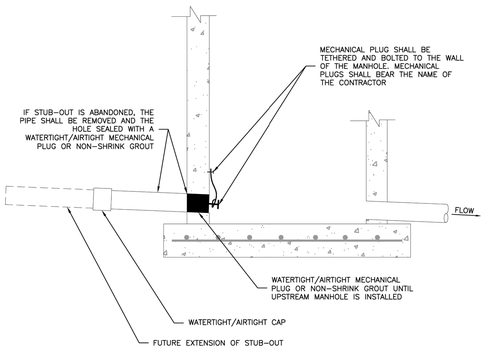
GRANDVIEW RESERVE M.D. -
INTERCEPTOR SEWER
D.R. HORTON
EL PASO COUNTY, CO

D·R·HORTON America's Builder

CONSTRUCTION DOCUMENTS

DETAILS

SHEET
C701

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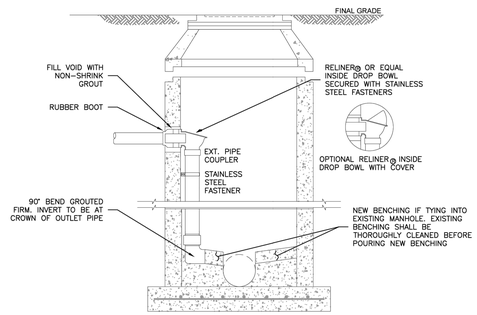
WASTEWATER MAIN
STUB-OUT FROM MANHOLE

C3-4

DATED 5/2015




NOTES:

1. SEE DETAIL DRAWING WW-2 FOR MANHOLE REQUIREMENTS.
2. DROP MANHOLES ARE NOT ALLOWED ON 10" AND LARGER PIPELINES. DROP MANHOLES SHALL BE REVIEWED AND APPROVED ON A CASE BY CASE BASIS BY WASTEWATER PLANNING AND ENGINEERING STAFF.
3. ALL INTERIOR CONCRETE SURFACES SHALL BE EPOXY COATED. CONCRETE SHALL BE FULLY CURED PRIOR TO COATING (TYPICAL 30 DAYS).
4. MINIMUM SIZE FOR A DROP MANHOLE IS 5' DIAMETER MANHOLE.
5. MANHOLES WITH 8' OR LESS OF INTERNAL DROP SHALL HAVE ONE STRAP AT THE TOP AND ONE AT THE BOTTOM OF THE DROP SECTION.
6. 1/4" – 2" STRAPS TO BE ANCHORED WITH 1/2" GALVANIZED LUG BOLTS IN TO WALL (TYP).

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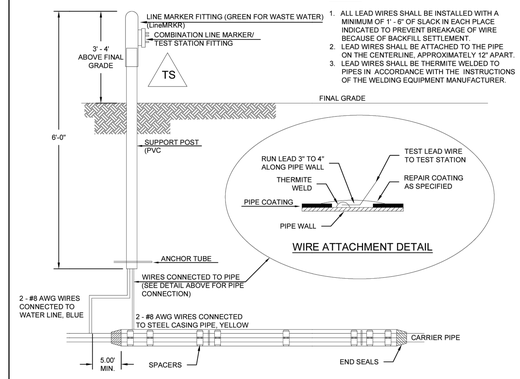
INTERNAL DROP MANHOLE
WITH DROP GREATER THAN 24"

C3-6

DATED 1/2017




NOTES:

1. ALL LEAD WIRES SHALL BE INSTALLED WITH A MINIMUM OF 1'-6" OF SLACK IN EACH PLACE INDICATED TO PREVENT BREAKAGE OF WIRE BECAUSE OF BACKFILL SETTLEMENT.
2. LEAD WIRES SHALL BE ATTACHED TO THE PIPE ON THE CENTERLINE, APPROXIMATELY 12" APART.
3. LEAD WIRES SHALL BE THERMITE WELDED TO PIPES IN ACCORDANCE WITH THE INSTRUCTIONS OF THE WELDING EQUIPMENT MANUFACTURER.

TYPICAL DETAIL FOR TEST STATION
WITH STEEL SLEEVE INSTALLATION

NOTES:

1. THE CASING SHALL BE CATHODICALLY PROTECTED UNDER THE DIRECTION OF THE COLORADO SPRINGS UTILITIES INSPECTOR. SEE SECTION 2.5.G.
2. EXAMPLE CAN VARY DUE TO SITE CONDITIONS AND COLORADO SPRINGS UTILITIES INSPECTORS' DIRECTION.
3. SEE STANDARD DETAIL DRAWING C2.4 - STEEL CASING INSTALLATION.
4. CONTRACTOR TO COORDINATE W/ COLORADO SPRINGS UTILITIES TO WIRE TERMINAL BOARD.
5. THERMITE WELD WIRES TO PIPE W/ 15 GRAM CHARGE. INSTALL COPPER SLEEVE WHEN WIRE IS #10 AWG OR SMALLER.
6. THERMITE WELD CONNECTIONS AND ANY BARE METAL SHALL BE COVERED WITH PRIMERLESS HANDICAP OR CORROSION TAPE.
7. CONTRACTOR TO VERIFY CONTINUITY OF ALL WIRES TO TERMINAL BOARD PRIOR TO FINAL ACCEPTANCE.

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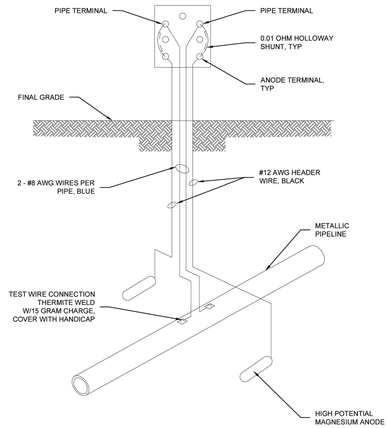
INSTALLATION OF CATHODIC
PROTECTION TEST STATION
AT A CASING PIPE

C5-5

DATED 07/2022

TERMINAL BOARD
WIRING DIAGRAM




NOTES:

1. THE CONTRACTOR SHALL COORDINATE WITH COLORADO SPRINGS UTILITIES TO WIRE TERMINAL BOARD.
2. THERMITE WELD WIRES TO PIPE WITH A 15 GRAM CHARGE. INSTALL A COPPER SLEEVE WHEN WIRE IS #10 AWG OR SMALLER.
3. THERMITE WELD CONNECTIONS AND ANY BARE METAL SHALL BE COVERED WITH PRIMERLESS HANDICAP OR CORROSION TAPE.
4. CONTRACTOR TO VERIFY CONTINUITY OF ALL WIRES TO TERMINAL BOARD PRIOR TO FINAL ACCEPTANCE.

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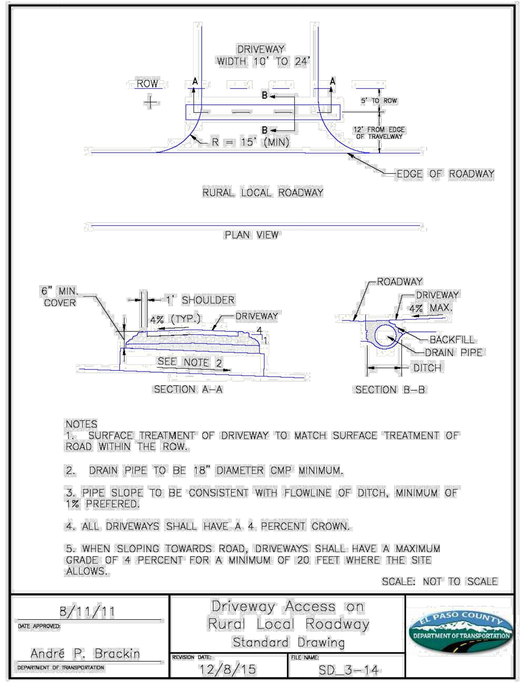
INSTALLATION OF CATHODIC
PROTECTION TEST STATION
AT AN ANODE

C5-6

DATED 07/2022




NOTES
1. SURFACE TREATMENT OF DRIVEWAY TO MATCH SURFACE TREATMENT OF ROAD WITHIN THE ROW.

2. DRAIN PIPE TO BE 18" DIAMETER CMP MINIMUM.

3. PIPE SLOPE TO BE CONSISTENT WITH FLOWLINE OF DITCH, MINIMUM OF 1% PREFERED.

4. ALL DRIVEWAYS SHALL HAVE A 4 PERCENT CROWN.

5. WHEN SLOPING TOWARDS ROAD, DRIVEWAYS SHALL HAVE A MAXIMUM GRADE OF 4 PERCENT FOR A MINIMUM OF 20 FEET WHERE THE SITE ALLOWS.

SCALE: NOT TO SCALE

| | | |
|---|---|---|
| 8/11/11<br>DATE APPROVED<br>André P. Brackin<br>DEPARTMENT OF TRANSPORTATION | Driveway Access on<br>Rural Local Roadway<br>Standard Drawing<br>REVISION DATE: 12/8/15<br>FILE NAME: SD_3-14 | EL PASO COUNTY<br>DEPARTMENT OF TRANSPORTATION |

| | | | |
|---|---|---|---|
| DRAWN BY: JMM | JOB DATE: 9/10/2024 | BAR IS ONE INCH ON OFFICIAL DRAWINGS. | |
| APPROVED: GP | JOB NUMBER: 201662.07 | 0 1" | |
| CAD DATE: 1/7/2025 | | IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY. | |
| CAD FILE: \\hrgreen.com\HRG\Data\2020\201662.07\CAD\Dwgs\C\Gravity_Line\Gr_Details | | | |

| NO. | DATE | BY | REVISION DESCRIPTION |
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HRGreen
HR GREEN - COLORADO SPRINGS
1975 RESEARCH PARKWAY | SUITE 230
COLORADO SPRINGS CO 80920
PHONE: 719.300.4140
FAX: 713.965.0044

GRANDVIEW RESERVE M.D. -
INTERCEPTOR SEWER
D.R. HORTON
EL PASO COUNTY, CO

D·R·HORTON
America's Builder

CONSTRUCTION DOCUMENTS

DETAILS

SHEET
C702

# Comment response for OFF SITE SANITARY SEWER

| Page No | Comments | Response |
|---|---|---|
| 7 | Is this line (portion of easement) needed if it's extending all the way to ROW in this area? | This is for permanent easement. Permanent and temporary easement label is added. |
| 9 | Label | Added |
| 10 | Include road classification, ROW width, public/private (all sheets with roads) | Added |
| 11 | ROW? | Not a ROW because Curtis Rd is a private road |
| 11 | Easement cannot be within ROW. Work in ROW permit will need to be obtained. | Curtis Rd is private that does not contain a ROW |
| 11 | What are these lines? | Removed |
| 12 | ROW | Not a ROW because Curtis Rd is a private road |
| 12 | Easement cannot be within ROW. Work in ROW permit will be needed to perform construction. | Curtis Rd is private that does not contain a ROW |
| 12 | Label lines | Labeled |
| 12 | What does this easement tie to? Clean up linework to clearly show what's easement, ROW, etc | Easement ties into ROW |
| 13 | ROW? | Label added |
| 13 | Easement needed through trail parcel | Easement added |
| 13 | label | Labeled |
| 15 | Label line | Labeled |
| 15 | ROW? (all "future" sheets) | Labeled |
| 15 | Easement will be needed for future line (all "future" sheets) | We don't need easement for future line. Easement will be acquired and added later submittals |
| 18 | Extend north easement line to existing parcel line and what does south easement line tie to? | We don't need easement for future line. Easement will be acquired and added later submittals |