GENERAL NOTES

1. EXISTING UTILITY LOCATIONS SHOWN ON THE PLANS ARE PLOTTED FROM THE BEST AVAILABLE INFORMATION AND ARE NOT NECESSARILY THE ACTUAL LOCATIONS. OVERHEAD UTILITIES MAY NOT BE SHOWN. COORDINATE POWER POLE SUPPORT AND RELOCATION WITH UTILITY OWNERS. CONTRACTOR SHALL POTHOLE TO LOCATE UTILITY CONFLICTS PRIOR TO CONSTRUCTION. COORDINATE WITH THE UNCC (800) 922-1987 A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION.
2. PROTECT ALL EXISTING SURFACE IMPROVEMENTS NOT DESIGNATED FOR DEMOLITION OR REMOVAL AND REPLACEMENT. ALL DAMAGED EXISTING IMPROVEMENTS AND THOSE IMPROVEMENTS WHICH HAVE BEEN REMOVED OR TEMPORARILY RELOCATED SHALL BE RESTORED TO A CONDITION EQUAL OR BETTER THAN PRIOR TO CONSTRUCTION.
3. ALL OVERHEAD UTILITIES AND POLE SUPPORTS MAY NOT BE SHOWN. POWER POLE SUPPORT AND RELOCATION SHALL BE COORDINATED WITH THE APPLICABLE AGENCIES.
4. ALL WORK ZONE TRAFFIC CONTROLS INCLUDING BARRICADING, SIGNING, STRIPING, AND FLAGGING MUST COMPLY WITH AN APPROVED TRAFFIC CONTROL PLAN. TRAFFIC CONTROL PLANS MUST BE SUBMITTED 10 DAYS IN ADVANCE OF COMMENCEMENT OF WORK.
5. A GAS DEPARTMENT INSPECTOR SHALL BE ON SITE DURING ANY CONSTRUCTION IN THE VICINITY OF GAS FACILITIES. CONTRACTOR SHALL NOTIFY THE COLORADO SPRINGS UTILITIES GAS DEPARTMENT A MINIMUM OF 48 HOURS IN ADVANCE ON CONSTRUCTION IN THE VICINITY OF GAS FACILITIES.
6. THE CONTRACTOR ASSUMES RESPONSIBILITY FOR WORKING AROUND AND PROTECTING LIVE GAS MAINS AND SERVICES. GAS SERVICES MAY OR MAY NOT BE RELOCATED DEPENDING ON DISCUSSION WITH THE GAS DEPARTMENT AND THE PROPERTY OWNER. OWNER WILL ASSIST WITH GAS SERVICE RELOCATION ON A CASE BY CASE BASIS.
7. WATER SERVICES NOT PROTECTED DURING CONSTRUCTION SHALL BE ISOLATED AND NEATLY CUT. TYPE K COPPER WATER SERVICES SHALL BE REPLACED AS PER COLORADO SPRINGS UTILITIES STANDARD DETAILS FOR WATER CONSTRUCTION. WATER SERVICES THAT ARE NOT TYPE K COPPER SHALL BE REPLACED WITH TYPE K COPPER FROM THE WATER MAIN TO THE CURB STOP BOX. ALL SERVICE INTERUPTIONS AND INSPECTIONS SHALL BE COORDINATED WITH COLORADO SPRING UTILITIES.
8. AT ALL EXISTING UTILITY UNDER CROSSINGS, EXCLUDING UNDERGROUND TELEPHONE, INSTALL UTILITY SUPPORT AS PER DETAIL C-608.
9. AT ALL SANITARY SEWER, SANITARY SEWER SERVICE, AND STORM DRAIN CROSSINGS, REMOVE AND REPLACE EXISTING PIPE AS PER DETAIL C-608. SANITARY SEWER SERVICES CUT DURING CONSTRUCTION SHALL BE REPLUMBED BY A PLUMBER LICENSED IN COLORADO SPRINGS.
10. PRESERVE EXISTING MONUMENTS, BENCH MARKS, RANGE TIES, PROPERTY MARKERS, REFERENCE POINTS, AND STAKES.
11. DISPOSE OF ITEMS TO BE DEMOLISHED OR REMOVED AND ALL CONSTRUCTION DEBRIS OFF SITE.
12. UNLESS OTHERWISE NOTED, ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION AND SUPPORT OF ALL UTILITIES DURING CONSTRUCTION AND SHALL BE RESPONSIBLE FOR COORDINATION WITH EACH UTILITY OWNER.
14. UNLESS OTHERWISE NOTED, ALL PAVEMENT SHALL BE REPLACED TO MATCH EXISTING THICKNESS.
15. ALL PAVEMENT TO BE REPLACED TO MATCH EXISTING OVER PIPE EXCAVATION AS PER CITY, COUNTY, OR STATE STANDARDS, WHERE APPLICABLE JURISDICTION APPLIES. IN ADDITION TO REPLACEMENT OF PAVEMENT OVER THE TRENCH EXCAVATION, THE CITY AND COUNTY REQUIRES THAT A 1-INCH OVERLAY BE APPLIED OVER THE LANE THAT IS AFFECTED BY THE WORK AND SHALL BE INSTALLED PER THEIR APPLICABLE STANDARDS.
16. CONTRACTOR SHALL INVESTIGATE FACILITIES PRIOR TO CONSTRUCTION.
17. BACKFILL AT STRUCTURES SHALL BE COMPACTED TO 95 PERCENT OF STANDARD PROCTOR TEST.
18. IN THE EVENT OF DISCREPANCIES BETWEEN DETAILS HEREIN AND THE CITY OF COLORADO SPRINGS OR COLORADO SPRINGS UTILITIES STANDARDS, THE MORE STRINGENT SHALL APPLY.

WASTEWATER GENERAL NOTES:

1. ALL D.I.P. SHALL BE CATHODICALLY PROTECTED BY BONDING ALL JOINTS, POLY-WRAPPING, AND INSTALLING 17LB MAGNESIUM ANODES AT THE LOCATIONS SHOWN ON THE DRAWINGS. THE COST OF ALL CATHODIC PROTECTION SHALL BE INCLUDED IN THE PROJECT.
2. ALL PVC PIPE SHALL BE INSTALLED PER COLORADO SPRINGS UTILITIES STANDARD SPECIFICATIONS.
3. IF A BYPASS PUMPING PLAN OR FLOW MANAGEMENT PLAN IS NEEDED, IT SHALL BE REVIEWED AND APPROVED BY THE COLORADO SPRINGS UTILITIES, PRIOR TO DESIGN APPROVAL. THE CONTRACTOR SHALL HAVE 100% REDUNDANT PUMPING CAPACITY WITH 24 HOUR SUPERVISION DURING ALL PUMPING OPERATIONS.
4. THE CONTRACTOR SHALL NOTIFY THE COLORADO SPRINGS UTILITIES, INSPECTION SUPERVISOR (MIKE WEBER -668-4658) 48 HOURS PRIOR TO THE START OF CONSTRUCTION TO OUTLINE METHODS OF CONSTRUCTION, MATERIALS TO BE USED, CONSTRUCTION STAKING.
5. ALL MANHOLES LOCATED WITHIN THE PROJECT LIMITS SHALL BE LOCATED AND RAISED BY THE CONTRACTOR. IF THE MANHOLE IS IN POOR CONDITION OR IF THE DISTANCE BETWEEN THE RING/COVER AND CONE OF THE MANHOLE EXCEEDS THE WASTEWATER STANDARDS, THE CONTRACTOR MAY BE REQUIRED TO REPLACE PART OR ALL OF THE EXISTING MANHOLE.
6. ALL MANHOLES TO BE ABANDONED SHALL HAVE THE "IN" AND "OUT" INVERTS PLUGGED WITH A WATERTIGHT MECHANICAL PLUG AND GROUTED, THE CONE SECTION SHALL BE REMOVED AND DISPOSED, THE RING AND COVER REMOVED AND RETURNED TO THE COLORADO SPRINGS UTILITIES, AND THE MANHOLE FILLED WITH COMPACTED FILL.
7. IF AN ABANDONED SEWER LINE FALLS UNDER A PROPOSED STRUCTURE IT SHALL BE REMOVED OR GROUTED FULL.
8. IF FIELD CONDITIONS ARE FOUND TO BE DIFFERENT THAN SHOWN ON THE PLANS THE CONTRACTOR SHALL NOTIFY THE COLORADO SPRINGS UTILITIES INSPECTOR AND THE ENGINEER IMMEDIATELY SO THAT APPROPRIATE ACTION CAN BE TAKEN BY THE OWNER/DEVELOPER.
9. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO THE WASTEWATER PIPELINES AS A RESULT OF HIS ACTIONS. THE CONTRACTOR SHALL MAKE ALL THE REQUIRED REPAIRS IMMEDIATELY TO THE SATISFACTION OF THE COLORADO SPRINGS UTILITIES INSPECTOR.
10. ALL PIPELINES 10" DIAMETER AND LARGER AND PIPELINES LESS THAN 12 SHALL BE "AS-BUILT" SURVEYED AND "AS-BUILT" DRAWING(S) AND AN ELECTRONIC FILE SUBMITTED TO THE COLORADO SPRINGS UTILITIES (RECORDS MANAGEMENT) FOR REVIEW AND ACCEPTANCE.
11. ALL SEPTIC TANKS TO BE ABANDONED SHALL HAVE THE INVERTS PLUGGED, THE LID REMOVED, AND THE TANK FILLED WITH APPROVED (GRANULAR) COMPACTED FILL. THE EL PASO COUNTY DEPARTMENT OF HEALTH SHALL BE NOTIFIED WHEN ANY SEPTIC TANK IS ABANDONED. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF HEALTH AND PAY ALL NECESSARY FEES AND PERMITS.
12. THE CONTRACTOR WILL BE REQUIRED TO REPLACE EXISTING MANHOLES THAT, IN THE COLORADO SPRINGS UTILITIES INSPECTOR'S VIEW, ARE FOUND TO BE IN POOR CONDITION AND CAN NO LONGER BE MODIFIED OR USED.
13. THE CONTRACTOR WILL VERIFY AND RECONNECT ALL EXISTING SERVICE CONNECTIONS WITH THE APPROVAL OF THE COLORADO SPRINGS UTILITY INSPECTOR. THE CONTRACTOR SHALL NOTE THAT SERVICES OTHER THAN THOSE FROM ADJACENT STRUCTURES MAY BE ENCOUNTERED.
14. FOR DEEP SERVICE SANITARY SEWER CONNECTIONS REFERENCE STANDARD DETAIL DRAWINGS WW - 7 FOR MINIMUM SLOPES AND DEPTH OF PLUG DETAILS.
15. FOR SERVICE LOCATION, REFERENCE STANDARD DETAIL DRAWING WW - 7 AND REFERENCE SECTION 7 .03(B).

FIMS MAP NO. G-34, G-35.

COLORADO SPRINGS UTILITIES WASTEWATER DESIGN APPROVAL

DATE:_____ BY:_____

PROJECT NO. 20003-S049 RMS NO. 1185912

IN CASE OF ERRORS OR OMISSIONS WITH THE SEWER DESIGN AS SHOWN ON THIS DOCUMENT THE STANDARDS AS DEFINED IN THE "RULES AND REGULATIONS FOR INSTALLATION OF SEWER MAINS AND SERVICES" SHALL RULE.
APPROVAL EXPIRES 180 DAYS FROM DESIGN APPROVAL.

CITY APPROVALS

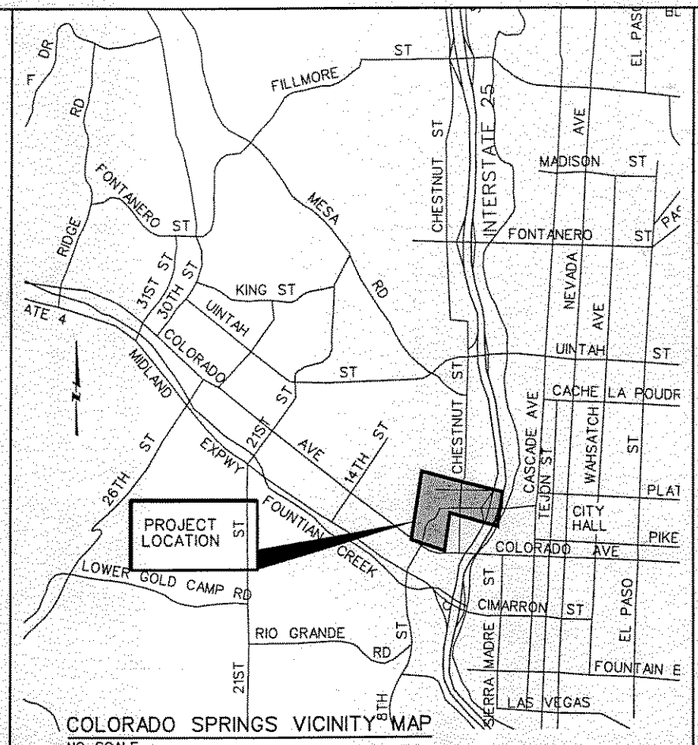
ACCEPTANCE BY THE CITY OF COLORADO SPRINGS ON DESIGN WORK BY DESIGN PROFESSIONALS CONSTITUTES BELIEF THAT THE WORK HAS BEEN DONE IN ACCORDANCE WITH CITY STANDARDS AND ORDINANCES. THE DESIGN, CONSTRUCTION DESIGN DRAWINGS, AND PROJECT MANUAL ARE THE RESPONSIBILITY OF THE DESIGN PROFESSIONAL AND CITY. ACCEPTANCE DOES NOT RELIEVE THE PROFESSIONAL OF SAID RESPONSIBILITY

CITY ENGINEERING DIVISION:

BY:_____ DATE:_____

PARKS & RECREATION DEPARTMENT:

BY:_____ DATE:_____



COLORADO SPRINGS VICINITY MAP
NO SCALE

GENERAL

G-1 COVER

CIVIL

GC-1 STANDARD DETAILS I

GC-2 STANDARD DETAILS II

C-1 PLAN AND PROFILE STATION 0+00 TO STATION 7+40

C-2 PLAN AND PROFILE STATION 7+40 TO END OF ALIGNMENT

RD C-3 PLAN AND PROFILE LATERAL ALIGNMENTS 1, 3 AND STUB OUT

1 C-4 ABANDONMENT PLAN

RD C-5 PLAN AND PROFILE CHESTNUT STREET 8" WATERMAIN REPLACEMENT

STRUCTURAL

GS-1 GENERAL NOTES AND STANDARD DETAILS I

GS-2 GENERAL NOTES AND STANDARD DETAILS II

S-1 MANHOLE 7

S-2 METER VAULT

RD S-3 JUNCTION CHAMBER

CALL UTILITY NOTIFICATION CENTER OF COLORADO
1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE OR EXCAVATE FOR MARKING OF UNDERGROUND MEMBER UTILITIES

Colorado Springs Utilities

Volume #2 – Drawings for the Construction of

I–25 / Cimarron Replacement Sewer –

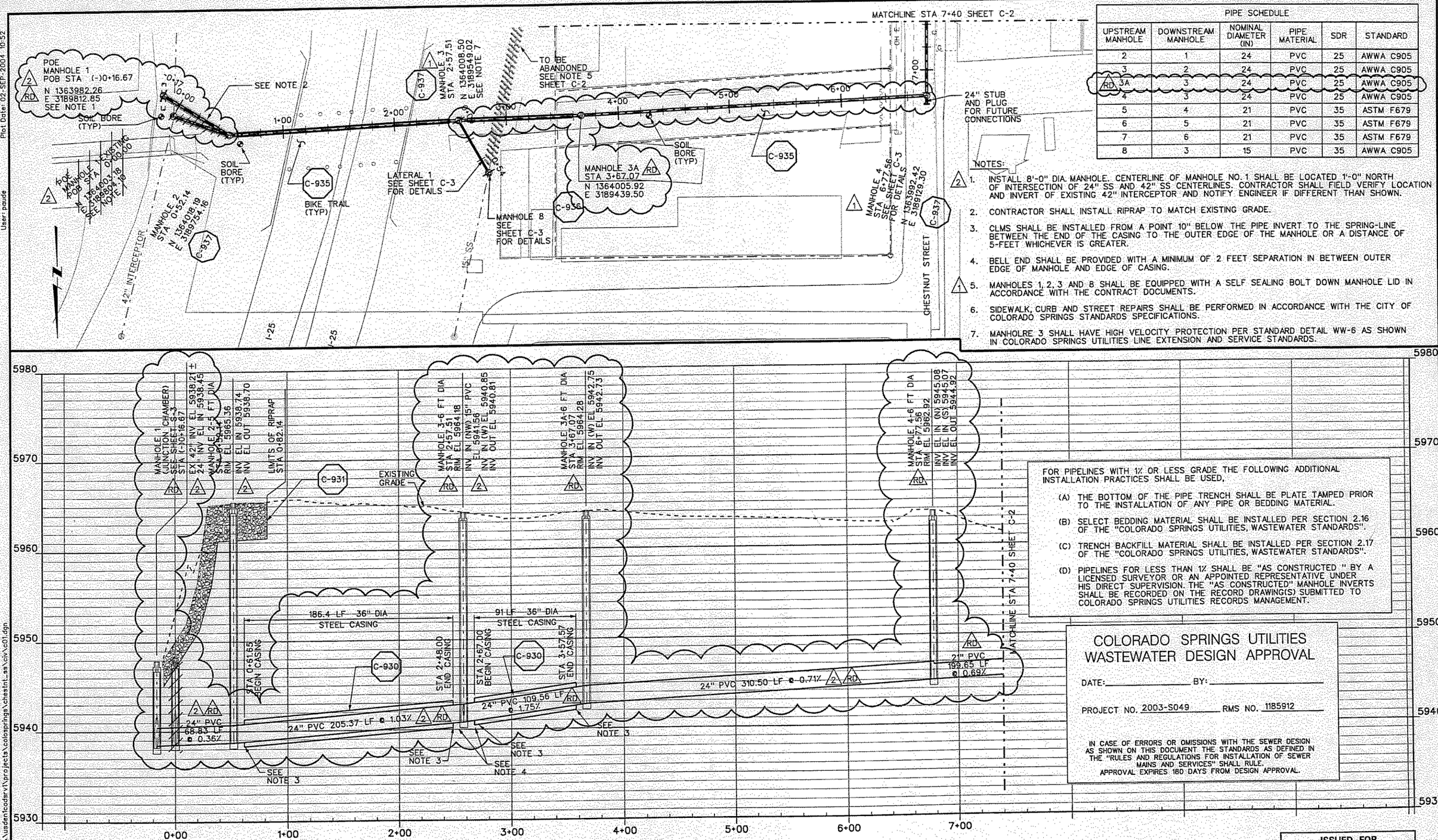
CSU Project No. 2003–S049

Addendum 1 April 2003

MWH
Colorado Springs, Colorado

Colorado Springs Utilities
It's how we're all connected

RECORD DRAWING



PIPE SCHEDULE					
UPSTREAM MANHOLE	DOWNSTREAM MANHOLE	NOMINAL DIAMETER (IN)	PIPE MATERIAL	SDR	STANDARD
2	1	24	PVC	25	AWWA C905
3	2	24	PVC	25	AWWA C905
RD 3A	3	24	PVC	25	AWWA C905
4	3	24	PVC	25	AWWA C905
5	4	21	PVC	35	ASTM F679
6	5	21	PVC	35	ASTM F679
7	6	21	PVC	35	ASTM F679
8	3	15	PVC	35	AWWA C905

NOTES:

2 1. INSTALL 8'-0" DIA. MANHOLE. CENTERLINE OF MANHOLE NO. 1 SHALL BE LOCATED 1'-0" NORTH OF INTERSECTION OF 24" SS AND 42" SS CENTERLINES. CONTRACTOR SHALL FIELD VERIFY LOCATION AND INVERT OF EXISTING 42" INTERCEPTOR AND NOTIFY ENGINEER IF DIFFERENT THAN SHOWN.

2. CONTRACTOR SHALL INSTALL RIPRAP TO MATCH EXISTING GRADE.

3. CLMS SHALL BE INSTALLED FROM A POINT 10" BELOW THE PIPE INVERT TO THE SPRING-LINE BETWEEN THE END OF THE CASING TO THE OUTER EDGE OF THE MANHOLE OR A DISTANCE OF 5-FEET WHICHEVER IS GREATER.

4. BELL END SHALL BE PROVIDED WITH A MINIMUM OF 2 FEET SEPARATION IN BETWEEN OUTER EDGE OF MANHOLE AND EDGE OF CASING.

1 5. MANHOLES 1, 2, 3 AND 8 SHALL BE EQUIPPED WITH A SELF SEALING BOLT DOWN MANHOLE LID IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

6. SIDEWALK, CURB AND STREET REPAIRS SHALL BE PERFORMED IN ACCORDANCE WITH THE CITY OF COLORADO SPRINGS STANDARDS SPECIFICATIONS.

7. MANHOLRE 3 SHALL HAVE HIGH VELOCITY PROTECTION PER STANDARD DETAIL WW-6 AS SHOWN IN COLORADO SPRINGS UTILITIES LINE EXTENSION AND SERVICE STANDARDS.

FOR PIPELINES WITH 1% OR LESS GRADE THE FOLLOWING ADDITIONAL INSTALLATION PRACTICES SHALL BE USED,

(A) THE BOTTOM OF THE PIPE TRENCH SHALL BE PLATE TAMPED PRIOR TO THE INSTALLATION OF ANY PIPE OR BEDDING MATERIAL.

(B) SELECT BEDDING MATERIAL SHALL BE INSTALLED PER SECTION 2.16 OF THE "COLORADO SPRINGS UTILITIES, WASTEWATER STANDARDS".

(C) TRENCH BACKFILL MATERIAL SHALL BE INSTALLED PER SECTION 2.17 OF THE "COLORADO SPRINGS UTILITIES, WASTEWATER STANDARDS".

(D) PIPELINES FOR LESS THAN 1% SHALL BE "AS CONSTRUCTED " BY A LICENSED SURVEYOR OR AN APPOINTED REPRESENTATIVE UNDER HIS DIRECT SUPERVISION. THE "AS CONSTRUCTED" MANHOLE INVERTS SHALL BE RECORDED ON THE RECORD DRAWING(S) SUBMITTED TO COLORADO SPRINGS UTILITIES RECORDS MANAGEMENT.

COLORADO SPRINGS UTILITIES WASTEWATER DESIGN APPROVAL

DATE:_____ BY:_____

PROJECT NO. 2003-S049 RMS NO. 1185912

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REV	DATE	BY	DESCRIPTION
RD	9/3/04	PAU	RECORD DRAWING
2	6/12/03	CAM	ALIGNMENT & PROFILE REVISIONS
1	4/23/03	CAM	ADDENDUM NO. 1

SCALE H: 1"=40' V: 1"=5'

WARNING 0 ½ 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED C MICHALOS
DRAWN D IMADA
CHECKED C MICHALOS

RECORD DRAWING
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MWH Colorado Springs Colorado

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I-25 / CIMARRON REPLACEMENT SEWER PROJECT

CSU PROJECT NO. 2003-S049
CIVIL
PLAN AND PROFILE
STATION 0+00 TO STATION 7+40

SHEET C-1

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User: paude
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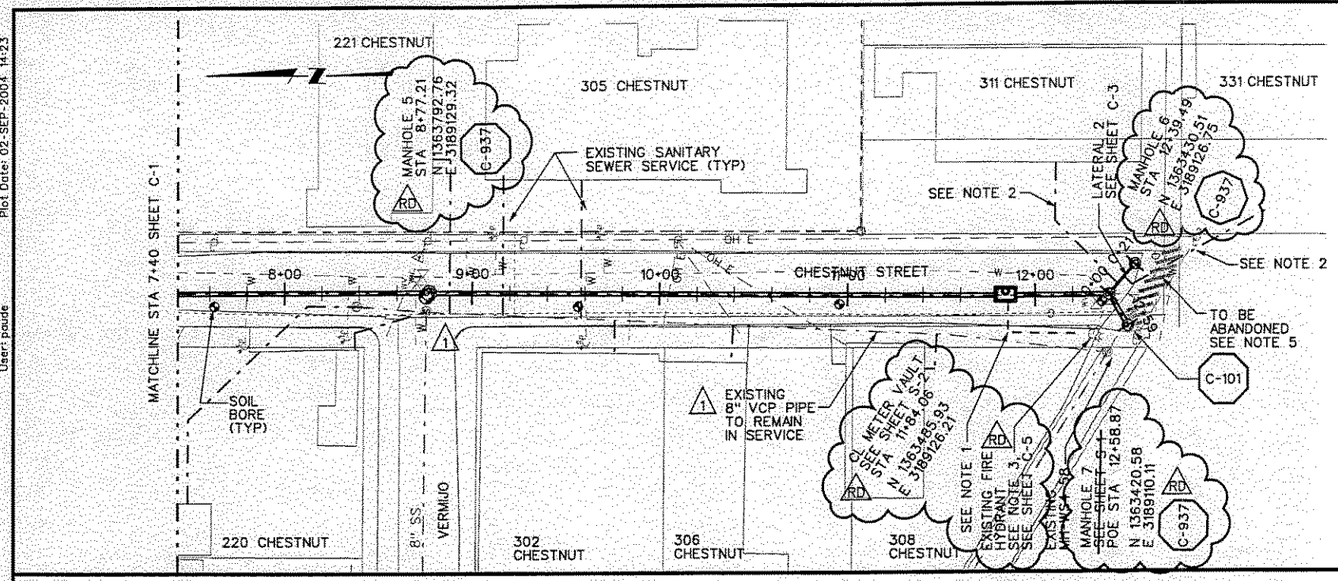
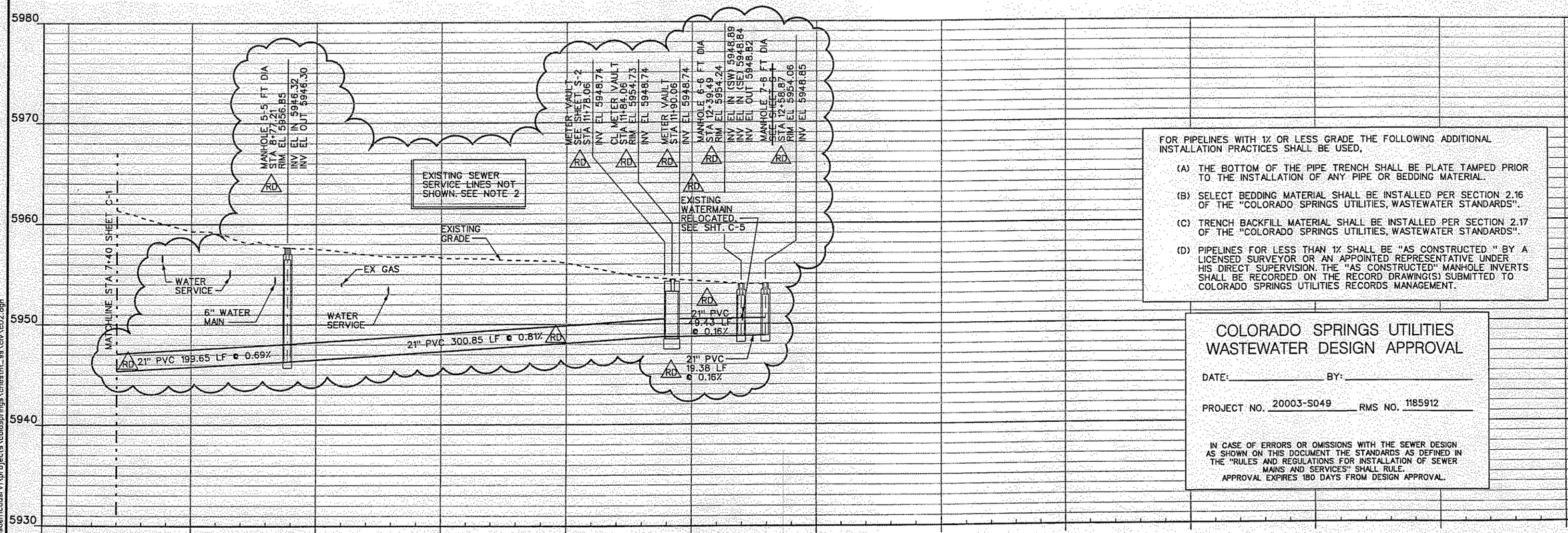


NOTE:

1. CONTRACTOR SHALL PROVIDE 2- 2 INCH DIAMETER CONDUIT FROM METER VAULT TO SCADA ANTENNA. OWNER SHALL PROVIDE AND INSTALL WIRING AND LEVEL SENSOR.
2. CONTRACTOR SHALL FIELD VERIFY SERVICE LINE LOCATIONS, RE-ROUTE SERVICE LINES AS REQUIRED TO CONNECT TO PROPOSED SEWER. CLEAN-OUT SHALL BE ADDED WHERE SERVICE NEW SERVICE LINE CONNECTS TO THE EXISTING SERVICE LINE AT THE RIGHT-OF WAY. ALL SERVICE LINES SHALL BE TOP-MOUNTED AND INSTALLED IN ACCORDANCE WITH THE COLORADO SPRINGS UTILITIES LINE EXTENSION & SERVICE STANDARDS.
3. CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF THE EXISTING FIRE HYDRANT AND WATER MAIN LOCATED NEAR MANHOLE 6. FIRE HYDRANT AND WATERMAIN SHALL BE REMOVED AND REPLACED OR RELOCATED AS REQUIRED TO CONSTRUCT THE PROPOSED 21" SEWER. ALL WORK TO THE WATER SYSTEM SHALL BE PERFORMED IN ACCORDANCE WITH THE COLORADO SPRINGS UTILITIES LINE EXTENSION & SERVICE STANDARDS AND COORDINATED AND APPROVED BY THE WATER DEPARTMENT PRIOR TO CONSTRUCTION.
4. CONTRACTOR SHALL TAKE THE NECESSARY PRECAUTIONS TO REMOVE AND REPLACE THE EXISTING SANITARY SERVICE LINES AS REQUIRED TO FACILITATE THE INSTALLATION OF THE PROPOSED 21" PVC SEWER PIPE. EXISTING SANITARY SERVICE LINES SHALL REMAIN CONNECTED TO THE EXISTING 8" VCP SEWER LINE.
5. EXISTING SEWER SHALL BE ABANDONED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
6. MANHOLES 6, 7, 10, AND METER VAULT SHALL BE EQUIPPED WITH A SELF SEALING BOLT DOWN MANHOLE LID IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
7. SIDEWALK, CURB AND STREET REPAIRS SHALL BE PERFORMED IN ACCORDANCE WITH THE CITY OF COLORADO SPRINGS STANDARDS SPECIFICATIONS.



FOR PIPELINES WITH 1% OR LESS GRADE THE FOLLOWING ADDITIONAL INSTALLATION PRACTICES SHALL BE USED,

(A) THE BOTTOM OF THE PIPE TRENCH SHALL BE PLATE TAMPED PRIOR TO THE INSTALLATION OF ANY PIPE OR BEDDING MATERIAL.

(B) SELECT BEDDING MATERIAL SHALL BE INSTALLED PER SECTION 2.16 OF THE "COLORADO SPRINGS UTILITIES, WASTEWATER STANDARDS".

(C) TRENCH BACKFILL MATERIAL SHALL BE INSTALLED PER SECTION 2.17 OF THE "COLORADO SPRINGS UTILITIES, WASTEWATER STANDARDS".

(D) PIPELINES FOR LESS THAN 1% SHALL BE "AS CONSTRUCTED " BY A LICENSED SURVEYOR OR AN APPOINTED REPRESENTATIVE UNDER HIS DIRECT SUPERVISION. THE "AS CONSTRUCTED" MANHOLE INVERTS SHALL BE RECORDED ON THE RECORD DRAWING(S) SUBMITTED TO COLORADO SPRINGS UTILITIES RECORDS MANAGEMENT.

COLORADO SPRINGS UTILITIES
WASTEWATER DESIGN APPROVAL

DATE: _____ BY: _____

PROJECT NO. 20003-S049 RMS NO. 1185912

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REV	DATE	BY	DESCRIPTION
RD	9/3/04	PAU	RECORD DRAWING
1	4/23/03	CAM	ADDENDUM NO. 1

SCALE
H: 1"=40'
V: 1"=5'

WARNING
0 ½ 1
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DESIGNED C MICHALOS
DRAWN D IMADA
CHECKED C MICHALOS

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MWH
Colorado Springs Colorado

Colorado Springs Utilities
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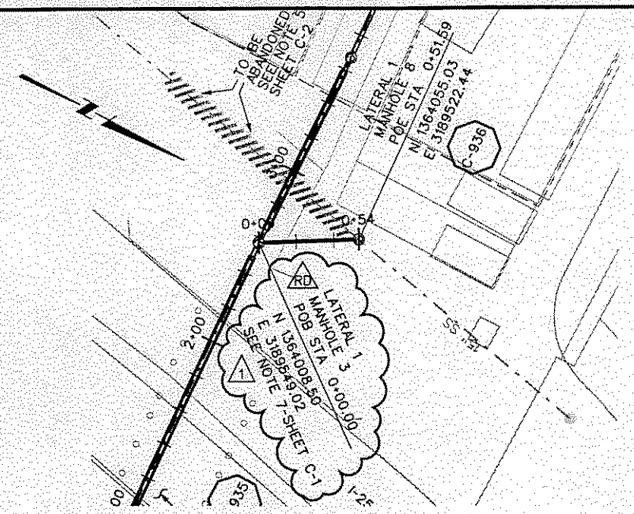
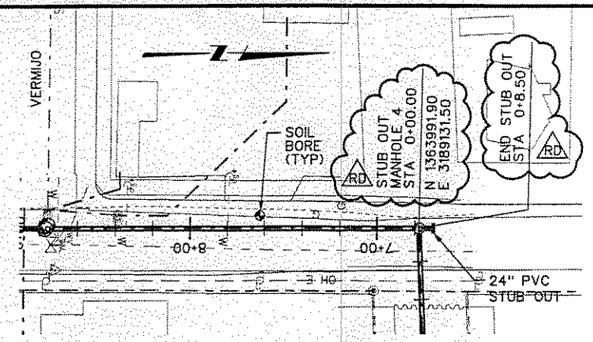
I-25 / CIMARRON REPLACEMENT SEWER PROJECT

CSU PROJECT NO. 2003-S049
CIVIL
PLAN AND PROFILE
STATION 7+40 TO END OF ALIGNMENT

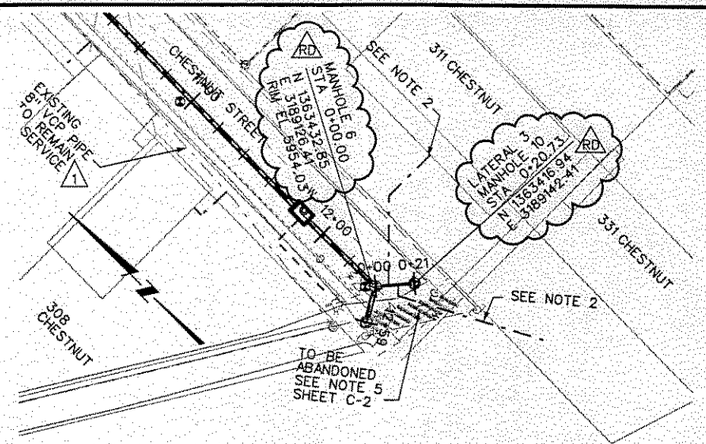
SHEET
C-2



LATERAL 1 - PLAN



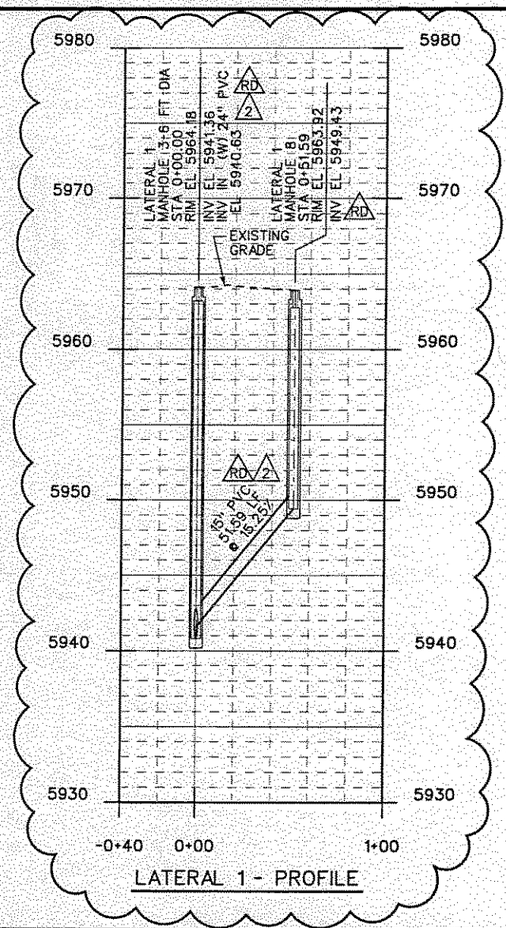
1 STUB OUT - PLAN



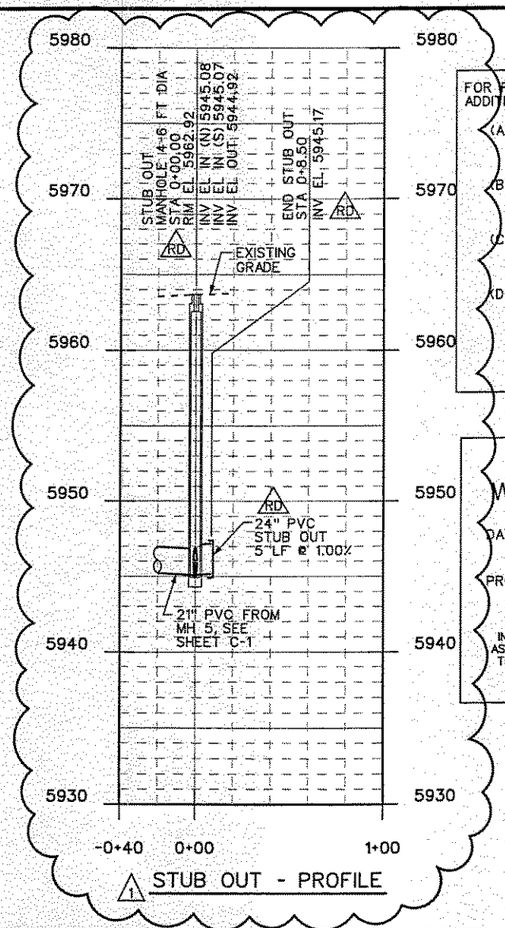
LATERAL 2 - PLAN

NOTES:

1. PROPOSED 15 INCH PVC LINE SHALL HAVE CONCRETE REVERSE ANCHORS PER STANDARD DETAIL WW-16 AS SHOWN IN COLORADO SPRINGS UTILITIES LINE EXTENSION AND SERVICE STANDARDS. MANHOLE 3 SHALL HAVE HIGH VELOCITY PROTECTION PER STANDARD DETAIL WW-6 AS SHOWN IN COLORADO SPRINGS UTILITIES LINE EXTENSION AND SERVICE STANDARDS.
2. CONTRACTOR SHALL FIELD VERIFY SERVICE LINE LOCATIONS, RE-ROUTE SERVICE LINES AS REQUIRED TO CONNECT TO PROPOSED SEWER. CLEAN-OUT SHALL BE ADDED WHERE NEW SERVICE LINE CONNECTS TO THE EXISTING SERVICE LINE AT THE RIGHT-OF WAY. ALL SERVICE LINES SHALL BE TOP-MOUNTED AND INSTALLED IN ACCORDANCE WITH THE COLORADO SPRINGS UTILITIES LINE EXTENSION & SERVICE STANDARDS.



LATERAL 1 - PROFILE



1 STUB OUT - PROFILE

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(A) THE BOTTOM OF THE PIPE TRENCH SHALL BE PLATE TAMPED PRIOR TO THE INSTALLATION OF ANY PIPE OR BEDDING MATERIAL.

(B) SELECT BEDDING MATERIAL SHALL BE INSTALLED PER SECTION 2.16 OF THE "COLORADO SPRINGS UTILITIES, WASTEWATER STANDARDS".

(C) TRENCH BACKFILL MATERIAL SHALL BE INSTALLED PER SECTION 2.17 OF THE "COLORADO SPRINGS UTILITIES, WASTEWATER STANDARDS".

(D) PIPELINES FOR LESS THAN 1% SHALL BE "AS CONSTRUCTED " BY A LICENSED SURVEYOR OR AN APPOINTED REPRESENTATIVE UNDER HIS DIRECT SUPERVISION. THE "AS CONSTRUCTED" MANHOLE INVERTS SHALL BE RECORDED ON THE RECORD DRAWING(S) SUBMITTED TO COLORADO SPRINGS UTILITIES RECORDS MANAGEMENT.

COLORADO SPRINGS UTILITIES
WASTEWATER DESIGN APPROVAL

DATE:_____ BY:_____

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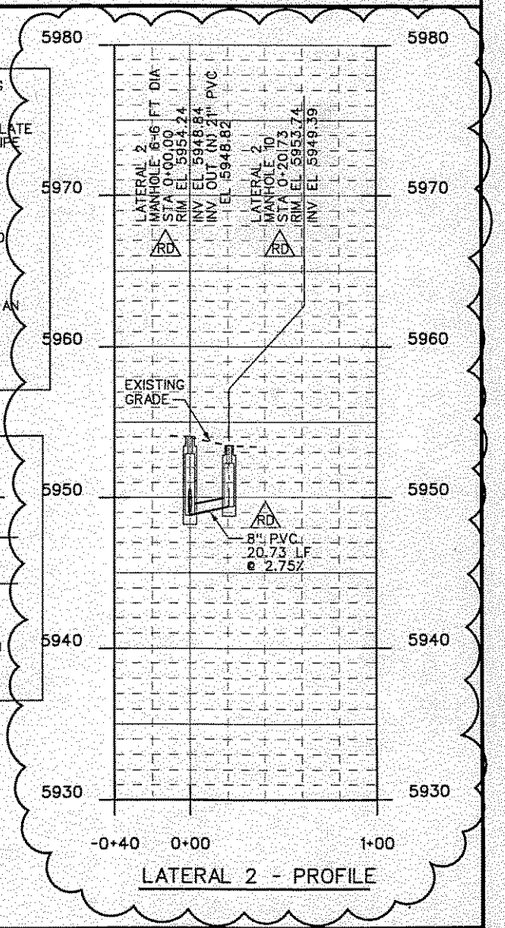

LATERAL 2 - PROFILE

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1	4/23/03	CAM	ADDENDUM NO. 1

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DESIGNED C MICHALOS
DRAWN D IMADA
CHECKED C MICHALOS

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MWH Colorado Springs Colorado

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I-25 / CIMARRON
REPLACEMENT
SEWER PROJECT

CSU PROJECT NO. 2003-S049
CIVIL
PLAN AND PROFILE
LATERAL ALIGNMENTS 1, 3 AND STUB OUT

SHEET C-3

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Job No: 1700474

Plot Date: 02-SEP-2004 10:34
User: poude
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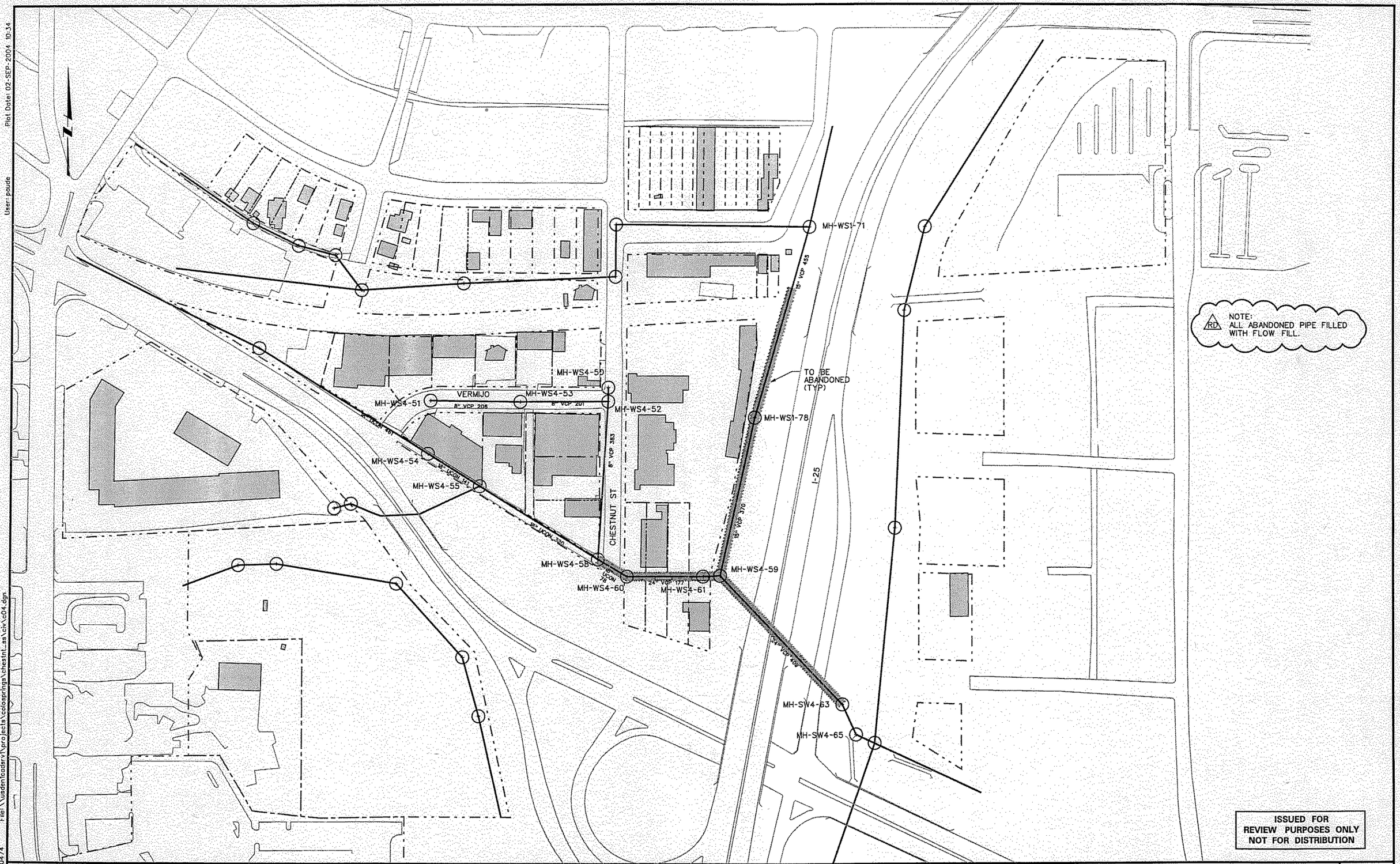
Job No: 1700474



ISSUED FOR REVIEW PURPOSES ONLY NOT FOR DISTRIBUTION

REV	DATE	BY	DESCRIPTION
RD	9/3/04	PAU	RECORD DRAWING
1	4/23/03	CAM	ADDENDUM NO. 1

SCALE: NO SCALE

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED L WILL
DRAWN D IMADA
CHECKED C MICHALOS

RECORD DRAWING

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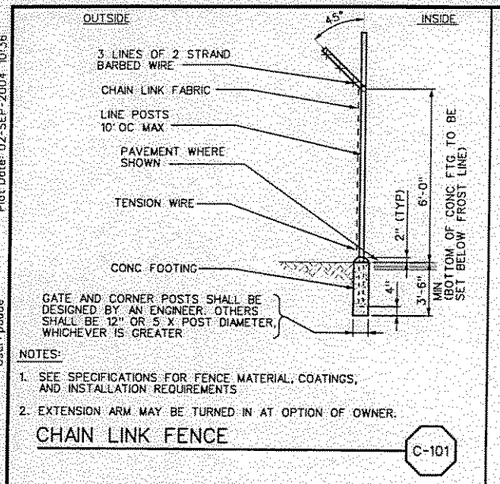
MWH
Colorado Springs
Colorado

I-25 / CIMARRON
REPLACEMENT
SEWER PROJECT

CSU PROJECT NO. 2003-S049

CIVIL
ABANDONMENT PLAN

SHEET
C-4



NOTES:

1. SEE SPECIFICATIONS FOR FENCE MATERIAL, COATINGS, AND INSTALLATION REQUIREMENTS
2. EXTENSION ARM MAY BE TURNED IN AT OPTION OF OWNER.

CHAIN LINK FENCE

C-101

A. FLEXIBLE PIPE REFERS TO ALL STEEL, DUCTILE-IRON AND PLASTIC PIPES.

B. TYPICAL TRENCH SECTIONS (I, II AND III) ARE TO BE USED ONLY WHERE STABLE, COMPACT SOIL CONDITIONS EXIST. IF BOULDER OR LARGE OBSTRUCTIONS WOULD BE ENCOUNTERED, TRENCH SECTIONS MAY BE DEEPER OR WIDER THAN SHOWN. THE ENGINEER SHOULD BE ADVISED SHOULD THIS OCCUR.

C. THE NEED FOR PROTECTIVE SYSTEMS, AND EXCAVATION SLOPES SHALL BE DETERMINED CONSIDERING APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS AND GEOTECHNICAL CONSULTANTS' RECOMMENDATIONS.

D. PROTECTIVE SYSTEMS SHALL BE DESIGNED AND BUILT IN ACCORDANCE WITH THE APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS.

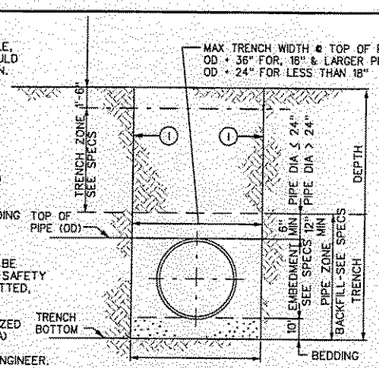
E. SUPPORTING DOCUMENTATION SHALL BE SUBMITTED TO THE ENGINEER REGARDING PIPE DESIGN AND COMPLIANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS.

F. UNSUPPORTED VERTICAL AND/OR SLOPING TRENCH WALL SLOPES SHALL NOT BE STEEPER THAN ALLOWED BY APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS, UNLESS SUPPORTING DOCUMENTATION IS SUBMITTED, ACCORDING TO AFOREMENTIONED SAFETY STANDARDS.

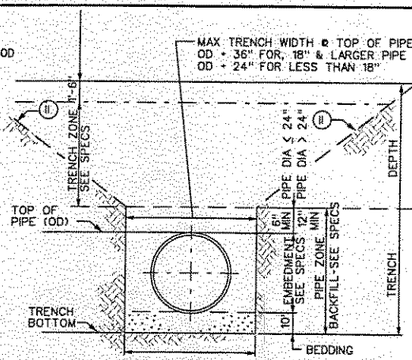
G. TRENCH SECTIONS OTHER THAN THE TYPICAL SECTIONS SHOWN MAY BE UTILIZED PROVIDED THEY COMPLY WITH APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS. DOCUMENTATION SUPPORTING THIS COMPLIANCE AND PIPE DESIGN CALCULATIONS SHALL BE SUBMITTED TO THE ENGINEER.

H. IF OVER-EXCAVATION DUE TO POOR FOUNDATION MATERIAL IS ORDERED BY THE ENGINEER, THE BACKFILL MATERIAL SHALL BE ACCORDING TO THE EARTHWORK SECTION OF THE SPECIFICATIONS ARTICLE ENTITLED, "USE OF FILL, BACKFILL AND EMBANKMENT MATERIAL TYPES."

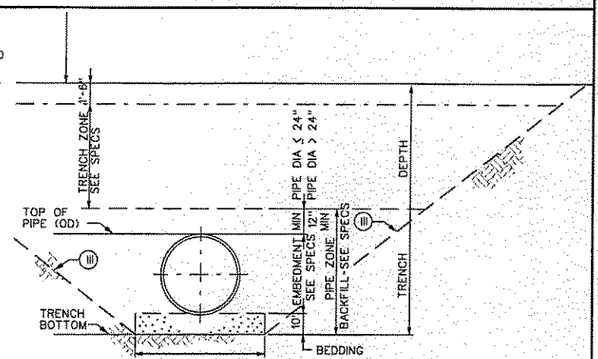
I. IF DURING CONSTRUCTION, THE WATER TABLE WILL BE DISCOVERED TO BE ABOVE THE TRENCH BOTTOM, THE ENGINEER SHALL BE NOTIFIED, AND APPROPRIATE DEWATERING SHALL BE IMPLEMENTED TO LOWER THE WATER LEVEL BELOW THE TRENCH BOTTOM. THE BACKFILL MATERIAL SHALL BE ACCORDING TO THE EARTHWORK SECTIONS OF THE SPECIFICATIONS, OR AS ORDERED BY THE ENGINEER.



TRENCH SECTION - TYPE I

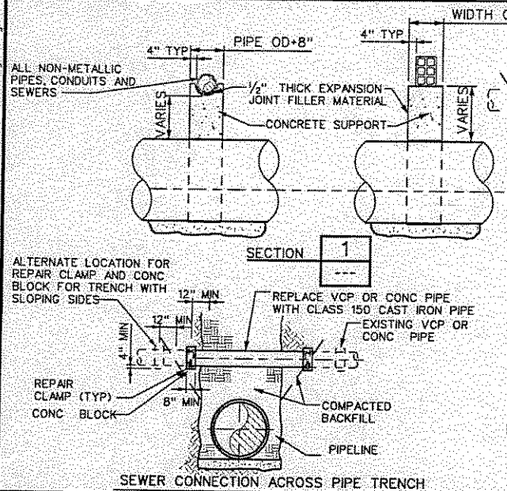


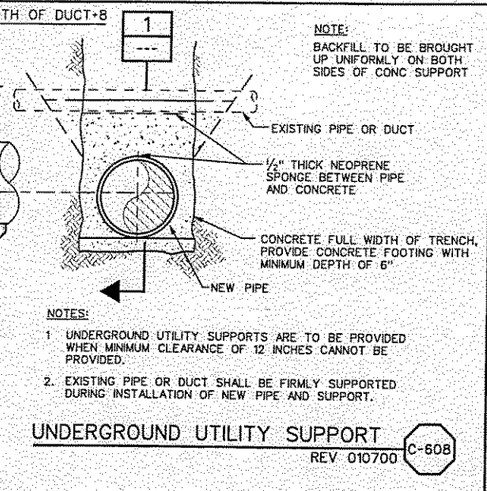
TRENCH SECTION - TYPE II



TRENCH SECTION - TYPE III

TRENCH SECTION
FLEXIBLE PIPE
REV 010301
C-601





NOTE:
BACKFILL TO BE BROUGHT UP UNIFORMLY ON BOTH SIDES OF CONC SUPPORT

NOTES:

1. UNDERGROUND UTILITY SUPPORTS ARE TO BE PROVIDED WHEN MINIMUM CLEARANCE OF 12 INCHES CANNOT BE PROVIDED.
2. EXISTING PIPE OR DUCT SHALL BE FIRMLY SUPPORTED DURING INSTALLATION OF NEW PIPE AND SUPPORT.

UNDERGROUND UTILITY SUPPORT

REV 010700
C-608

ISSUED FOR REVIEW PURPOSES ONLY NOT FOR DISTRIBUTION

REV	DATE	BY	DESCRIPTION
RD	9/3/04	PAU	RECORD DRAWING
1	4/23/03	CAM	ADDENDUM NO. 1

SCALE: NO SCALE

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED MW STANDARD
DRAWN MW STANDARD
CHECKED

RECORD DRAWING
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I-25 / CIMARRON REPLACEMENT SEWER PROJECT

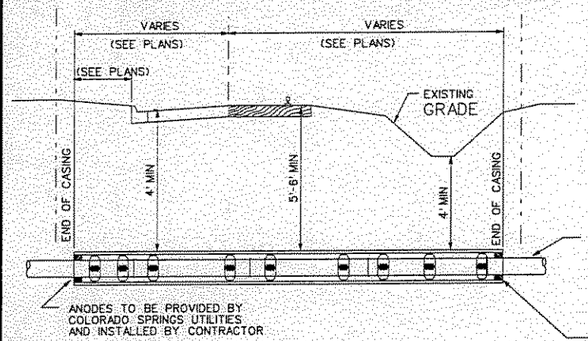
CSU PROJECT NO. 2003-S049

CIVIL
STANDARD DETAILS I

SHEET
GC-1

Job No: 1700474
File: \\adenfoodserv1\projects\colosprings\chestnt_ss\civ\gc01.dgn
User: paude
Plot Date: 02-SEP-2004 10:36

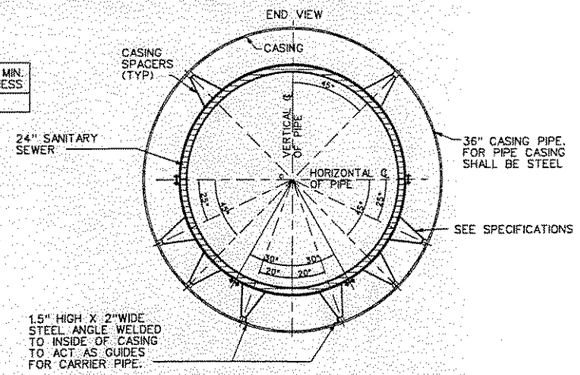
Plot Date: 02-SEP-2004 10:37
User: poude



CASING DETAILS FOR ROADWAY

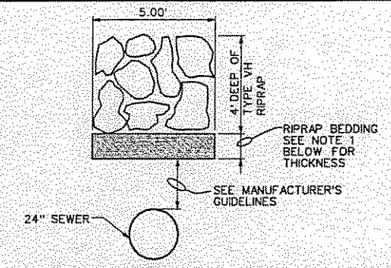
CARRIER PIPE DIAMETER	CASING PIPE DIAMETER	CASING PIPE MIN. WALL THICKNESS
24" PVC	36" STEEL	0.5"

CASING SCHEDULE



CASING INSTALLATION WITH CASING INSULATORS

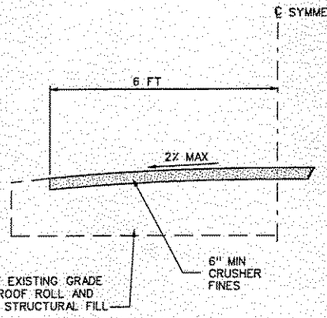
⚠1 CASING DETAIL — C-930



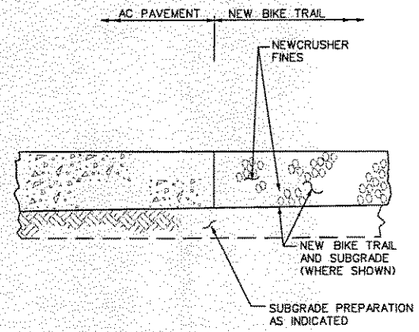
1. FOR IN-SITU FINE GRAINED SOILS, A LAYER OF TYPE II BEDDING SHALL BE PLACED ON TOP OF A LAYER OF TYPE I BEDDING. FOR IN-SITU COARSE GRAINED SOILS, ONLY A LAYER OF TYPE II BEDDING IS REQUIRED. BEDDING THICKNESSES SHALL BE AS FOLLOWS:

MINIMUM BEDDING THICKNESS (INCHES)				
RIPRAP TYPE	FINE GRAINED SOILS			COARSE GRAINED SOILS
	TYPE I	TYPE II	TOTAL	TYPE II
VH	4	6	10	8

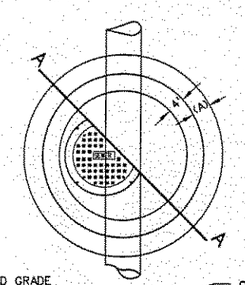
TYPE VH RIPRAP — C-931



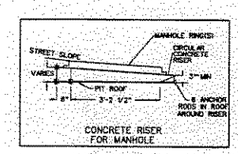
BIKE TRAIL SECTION — C-935



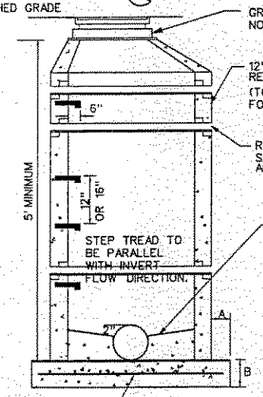
AC PAVEMENT - BIKE TRAIL TRANSITION — C-936



NOTE:
48" DIA. MH - 16",18"24" CONE
60" DIA. MH - 24", 33" CONE
72" DIA. MH - 40" CONE
4" THICK WALL PER ASTM C-470



CONCRETE RISER FOR MANHOLE

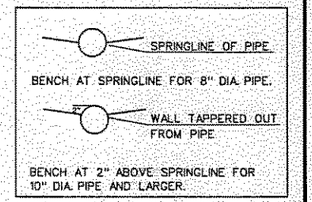


MANHOLE DEPTH	DIMENSION A	DIMENSION B
0' TO 14'	6"	8"
OVER 14'	12"	12"

PRECAST BASE: *4 @ 12" O.C. EACH WAY OVER 14' DEEP - *4 @ 12" O.C. EACH WAY.

NOTE:
STRUCTURAL REINFORCEMENT SHALL COMPLY TO ASTM C-478 AND SHALL BE STAMPED ON THE OUTSIDE OF MANHOLE

SECTION A-A



NOTES:
- ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 4000 PSI @ 28 DAYS. RATED FOR H-20 LOADING
- ALL CONCRETE SHALL BE MECHANICALLY VIBRATED.
- DO NOT DROP CONCRETE A DISTANCE OF MORE THAN 5' UNLESS APPROVED BY COLORADO SPRINGS UTILITIES.

⚠1 MANHOLE — C-937

ISSUED FOR REVIEW PURPOSES ONLY NOT FOR DISTRIBUTION

REV	DATE	BY	DESCRIPTION
RD	9/3/04	PAU	RECORD DRAWING
⚠	4/23/03	CAM	ADDENDUM NO. 1

SCALE: NO SCALE

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED MW STANDARD
DRAWN MW STANDARD
CHECKED

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I-25 / CIMARRON REPLACEMENT SEWER PROJECT

CSU PROJECT NO. 2003-S049
CIVIL
STANDARD DETAILS II

SHEET GC-2

Job No: 1700474
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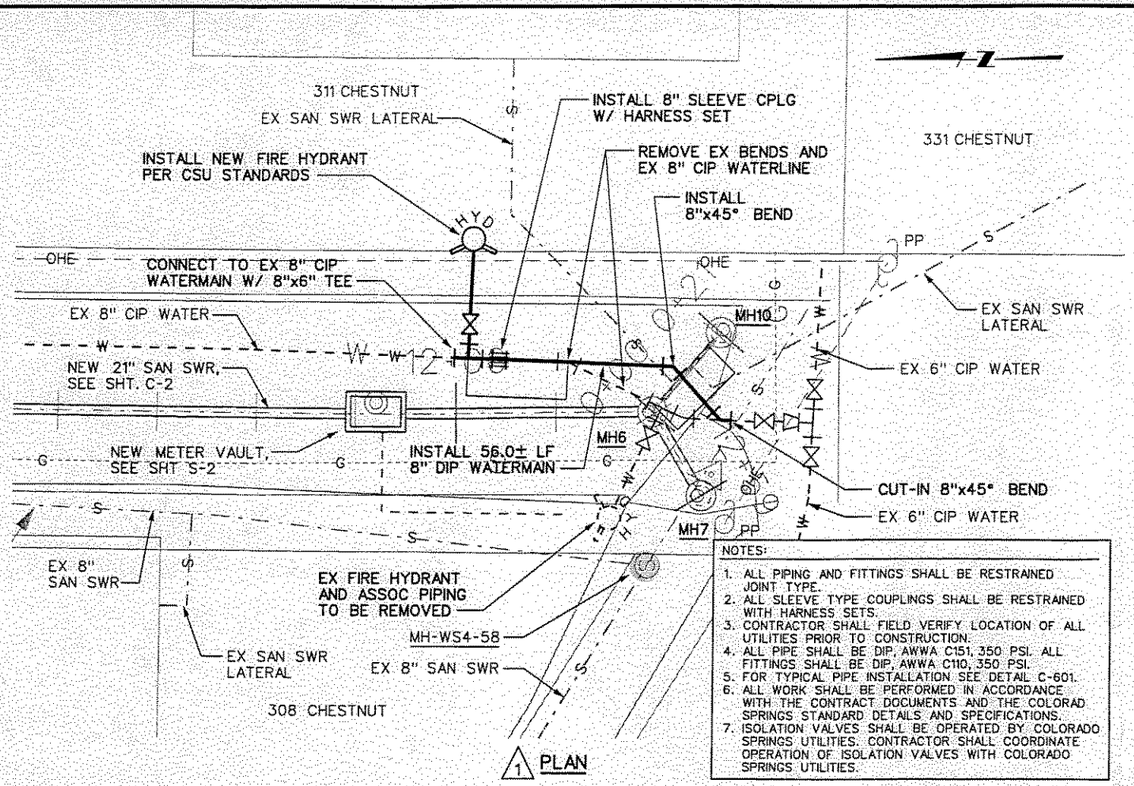
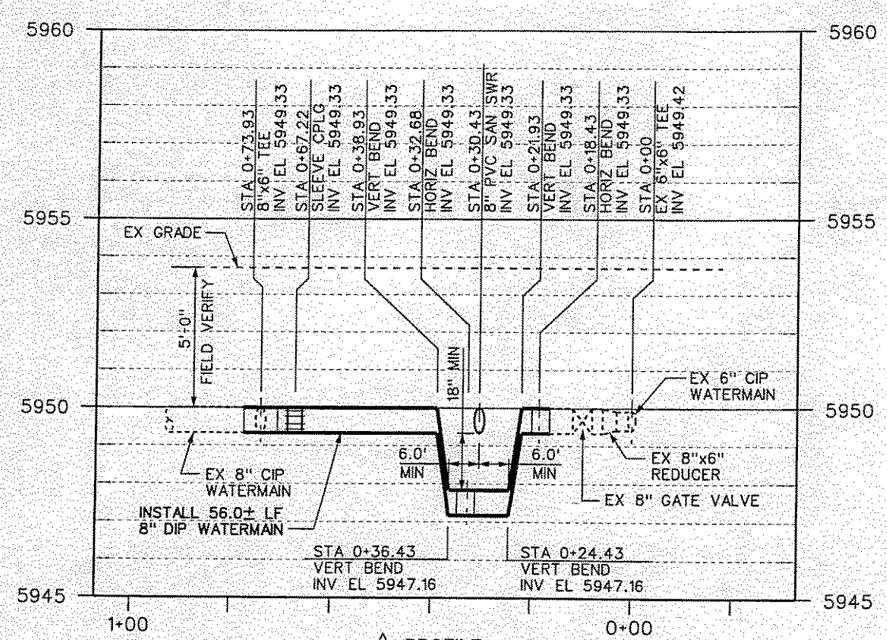


NOTES:

1. ALL PIPING AND FITTINGS SHALL BE RESTRAINED JOINT TYPE.
2. ALL SLEEVE TYPE COUPLINGS SHALL BE RESTRAINED WITH HARNESS SETS.
3. CONTRACTOR SHALL FIELD VERIFY LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.
4. ALL PIPE SHALL BE DIP, AWWA C151, 350 PSI. ALL FITTINGS SHALL BE DIP, AWWA C110, 350 PSI.
5. FOR TYPICAL PIPE INSTALLATION SEE DETAIL C-601.
6. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND THE COLORAD SPRINGS STANDARD DETAILS AND SPECIFICATIONS.
7. ISOLATION VALVES SHALL BE OPERATED BY COLORADO SPRINGS UTILITIES. CONTRACTOR SHALL COORDINATE OPERATION OF ISOLATION VALVES WITH COLORADO SPRINGS UTILITIES.



1 PROFILE

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REV	DATE	BY	DESCRIPTION
RD	9/3/04	PAU	RECORD DRAWING
1	7/24/03	CAM	WCD NO. 2

SCALE H: 1"=15' V: 1"=2'

WARNING 0 ½ 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED C MICHALOS
DRAWN P.A. UDE
CHECKED J CASIAS

RECORD DRAWING

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I-25 / CIMARRON REPLACEMENT SEWER PROJECT

CSU PROJECT NO. 2003-S049

CIVIL
PLAN AND PROFILE
CHESTNUT STREET 8" WATERMAIN RELOCATION

SHEET C-5

Job No: 1700474 File: \\usdenfcadsrv1\projects\colosprings\chestnt_ss\civ\c05.dgn User: paude Plot Date: 02-SEP-2004 10:35

Plot Date: 02-SEP-2004 10:37

User: paude

GENERAL NOTES

GENERAL

THESE NOTES ARE GENERAL AND APPLY TO THE ENTIRE PROJECT EXCEPT WHERE SPECIFICALLY INDICATED OTHERWISE.

STRUCTURAL DIMENSIONS CONTROLLED BY OR RELATED TO MECHANICAL OR ELECTRICAL EQUIPMENT SHALL BE COORDINATED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. BOLT SIZES, TYPES, AND PATTERNS SHALL BE VERIFIED WITH THE MANUFACTURER. ALL BOLT PATTERNS SHALL BE TEMPLATED TO INSURE ACCURACY OF PLACEMENT.

MECHANICAL AND ELECTRICAL EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES AND REVEALS NOT SHOWN ON THE STRUCTURAL DRAWINGS BUT REQUIRED BY OTHER CONTRACT DRAWINGS, SHALL BE PROVIDED FOR PRIOR TO PLACING CONCRETE.

STRUCTURAL DRAWINGS SHALL BE USED IN COORDINATION WITH MECHANICAL, ELECTRICAL, ARCHITECTURAL, CIVIL DRAWINGS AND SHOP DRAWINGS PROVIDED BY MANUFACTURES OF EQUIPMENT.

STRUCTURES HAVE BEEN DESIGNED FOR OPERATIONAL LOADS ON THE COMPLETED STRUCTURES. DURING CONSTRUCTION, THE STRUCTURES SHALL BE PROTECTED BY BRACING AND BALANCING WHEREVER EXCESSIVE CONSTRUCTION LOADS MAY OCCUR. OVERSTRESSING OF ANY STRUCTURAL ELEMENT IS PROHIBITED.

UNLESS OTHERWISE SHOWN, ON ALL STRUCTURAL DRAWINGS THE FINISH GRADE AROUND STRUCTURES IS SHOWN THUS ////, INDICATING EITHER GROUND SURFACE, TOP OF CONCRETE SLAB OR AC PAVEMENT. FOR DETAILS OF FINISH SURFACES SEE CIVIL AND ARCHITECTURAL DRAWINGS.

STRUCTURAL

DESIGN IN ACCORDANCE WITH THE 97 EDITION OF THE UNIFORM BUILDING CODE, EXCEPT WHERE OTHER APPLICABLE CODES OR THE FOLLOWING NOTES ARE MORE RESTRICTIVE.

LOADINGS:

LATERAL EARTH PRESSURE COEFFICIENT FOR BACKFILL ---- 0.5
COMPACTED FILL AND NATURAL SOIL UNIT WEIGHT ---- 125 PCF
SEISMIC ZONE ---- 1
LIVE LOAD ---- H20

LOCATION OF ALL CONSTRUCTION JOINTS SHALL BE AS SHOWN ON THE DRAWINGS OR APPROVED BY THE ENGINEER. ALL CONSTRUCTION JOINTS LOCATED ON THE DRAWINGS OR REQUIRED FOR CONSTRUCTION, BUT NOT SHOWN ON THE DRAWINGS, SHALL HAVE A 6" FLATSTRIP WATERSTOP, IF IN MEMBERS IN CONTACT WITH WATER. IN ADDITION, JOINTS IN ALL SLABS COVERED WITH WATER, SHALL HAVE BOTH A 6" FLATSTRIP WATERSTOP AND A SEALANT GROOVE.

STRUCTURAL STEEL

STEEL CONSTRUCTION SHALL CONFORM TO THE SPECIFICATIONS AND STANDARDS AS CONTAINED IN THE LATEST EDITION OF THE AISC STEEL CONSTRUCTION MANUAL.

ALL STRUCTURAL SHAPES, BARS, PLATES AND SHEETS SHALL BE OF STEEL MEETING ASTM A-36 SPECIFICATIONS.

ALL WELDING SHALL BE BY THE SHIELDED ARC METHOD AND SHALL CONFORM TO AWS CODE FOR ARC AND GAS WELDING IN BUILDING CONSTRUCTION. QUALIFICATIONS OF WELDERS SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS FOR STANDARD QUALIFICATION PROCEDURE OF THE AWS.

CONCRETE (EXCEPT PRECAST CONCRETE)

UNLESS OTHERWISE NOTED OR SPECIFIED, ALL STRUCTURAL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI IN 28 DAYS.

REINFORCEMENT STEEL SHALL BE DEFORMED BARS CONFORMING IN QUALITY TO THE REQUIREMENTS OF ASTM A-615, "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", GRADE 60

COLUMN SPIRALS SHALL CONFORM TO ASTM A-82, "SPECIFICATION FOR COLD-DRAWN STEEL WIRE FOR CONCRETE REINFORCEMENT".

ALL DETAILING, FABRICATION AND PLACING OF REINFORCING BARS, UNLESS OTHERWISE INDICATED, SHALL BE IN ACCORDANCE WITH ACI-315, "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", LATEST EDITION.

TOLERANCES IN PLACING REINFORCEMENT SHALL BE:

± 3/8 INCH FOR MEMBERS WITH D </= 8 INCHES
± 1/2 INCH FOR MEMBERS WITH D > 8 INCHES

ALL CONSTRUCTION JOINTS, SHALL BE ROUGH AND THOROUGHLY CLEANED FOR BOND.

DOWELS, PIPE, WATERSTOPS AND OTHER INSTALLED MATERIALS AND ACCESSORIES SHALL BE HELD SECURELY IN POSITION WHILE CONCRETE IS BEING PLACED.

UNLESS OTHERWISE INDICATED, ASIDE FROM NORMAL ACCESSORIES USED TO HOLD REINFORCING BARS FIRMLY IN POSITION, THE FOLLOWING SHALL BE ADDED:

A) IN SLABS #5 RISER BARS AT 36 INCHES OC MAXIMUM TO SUPPORT TOP REINFORCING BARS.

B) IN WALLS WITH 2 CURTAINS #3 U OR Z SHAPE SPACERS AT 6 FEET OC EACH WAY.

VERTICAL REINFORCEMENT FOR CONCRETE OR MASONRY SHALL BE SPLICED WITH DOWEL BARS OF THE SAME SIZE AND SPACING FROM THE FOUNDATION USING A STANDARD SPLICE LENGTH UNLESS INDICATED OTHERWISE.

SEALANT SHALL BE PLACED AT THE TOP OF ALL JOINTS RECEIVING EXPANSION JOINT FILLER. SEALANT DEPTH SHALL BE THE JOINT FILL THICKNESS OR 59/64", WHICHEVER IS LESS.

ALL GROUT SHALL BE NON-SHRINK GROUT, UNLESS INDICATED OTHERWISE.

UNLESS OTHERWISE SHOWN CONCRETE WALLS AND SLABS SHALL BE REINFORCED AS FOLLOWS: #4@12" EW, CENTER OF 6" SECTIONS: #5@12" EW, CENTER OF 8" SECTIONS: #4 @ 12" EW EF OF 10" SECTIONS: #5@12" EW EF OF 12" AND THICKER SECTIONS.

METAL CLIPS OR SUPPORTS SHALL NOT BE PLACED IN CONTACT WITH THE FORMS OR THE SUBGRADE. CONCRETE BLOCKS (OR DOBIES) SUPPORTING BARS ON SUBGRADE SHALL BE IN SUFFICIENT NUMBERS TO SUPPORT THE BARS WITHOUT SETTLEMENT, BUT IN NO CASE SHALL SUCH SUPPORT BE CONTINUOUS.

DOWELS SHALL BE WIRED OR OTHERWISE HELD IN POSITION. THEY SHALL NOT BE SHOVED INTO FRESHLY PLACED CONCRETE.

UNLESS OTHERWISE INDICATED ON THE DRAWINGS, LAPS OF REINFORCEMENT SHALL BE AS SHOWN ON DETAIL S-143.

LOCATE TWO 3/4 INCH GALVANIZED RICHMOND ROCKET INSERTS, HOHMANN & BARNARD OR EQUAL, STRADDLING CENTERLINE OF EQUIPMENT OVER ALL PUMPS, METERS OR OTHER MECHANICAL UNITS OF MORE THAN 100 LBS, FOR INSERTING LIFTING EYES IF NOT OTHERWISE INDICATED.

REINFORCING BARS AND ACCESSORIES SHALL NOT BE IN CONTACT WITH AND PIPE, PIPE FLANGE OR METAL PARTS EMBEDDED IN CONCRETE. A MINIMUM OF 2 INCHES CLEARANCE SHALL BE PROVIDED AT ALL TIMES.

ALL ITEMS EMBEDDED IN CONCRETE SHALL BE SPACED ON CENTER AT LEAST 4 TIMES THEIR OUTSIDE DIMENSION. THE OUTSIDE DIMENSION SHALL NOT EXCEED ONE THIRD OF THE MEMBER THICKNESS

UNLESS OTHERWISE SHOWN ON THE DRAWINGS CONCRETE COVER FOR REINFORCING BARS SHALL BE AS FOLLOWS:

FOR CONCRETE PLACED AGAINST EARTH ---- 3"

FOR SURFACES IN CONTACT WITH WATER OR WEATHER AND FORMED SURFACES IN CONTACT WITH EARTH ---- 2"

FOR CONCRETE NOT EXPOSED TO WEATHER, OR IN CONTACT WITH WATER OR EARTH ---- 1 1/2"

UNLESS OTHERWISE NOTED, WALLS AND SLABS SHOWN WITH A SINGLE LAYER OF REINFORCEMENT SHALL HAVE THAT REINFORCEMENT CENTERED

SLABS WITH SLOPING SURFACES SHALL HAVE THE INDICATED SLAB THICKNESS MAINTAINED AS THE MINIMUM. SLAB BOTTOMS MAY EITHER SLOPE WITH THE TOP SURFACE OR BE LEVEL. REINFORCING IN SLABS WITH SLOPING SURFACES SHALL BE PLACED AT THE REQUIRED CLEARANCE FROM THE SLAB SURFACES.

TESTING HYDRAULIC STRUCTURES

WHEN FILLING THE STRUCTURES WITH WATER FOR THE TEST REQUIRED IN THE SPECIFICATIONS, ALL VARIOUS BASINS LOCATED IN THE SAME STRUCTURE SHALL BE FILLED SIMULTANEOUSLY AT THE SAME RATE IN ORDER TO KEEP THE SAME LEVEL IN EACH BASIN.

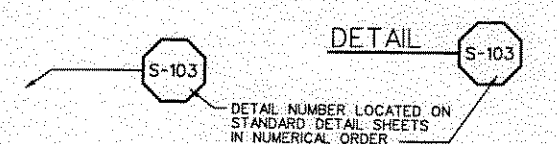
STRUCTURAL STANDARD DETAILS

DETAILS ON SHEETS NUMBERED GS-* ARE PART OF MONTGOMERY WATSON'S STRUCTURAL STANDARD DETAILS.

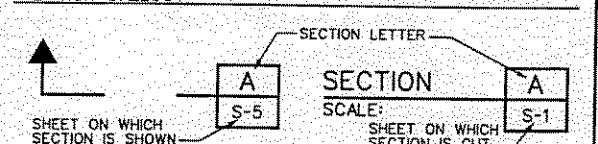
THESE DETAILS ARE TO BE USED WHEN REFERRED TO OR WHEN NO OTHER MORE RESTRICTIVE OR DIFFERENT DETAILS ARE SHOWN ON THE DRAWINGS.

DETAILS NOT PERTAINING TO THE PROJECT ARE MARKED THUS

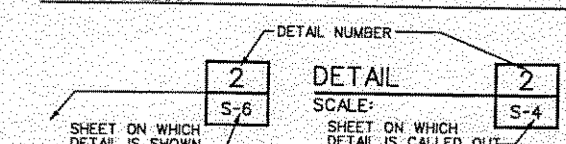
STRUCTURAL STANDARD DETAIL CALLOUT

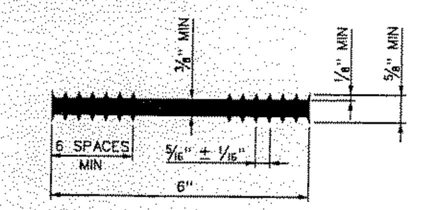


SECTION CALLOUT

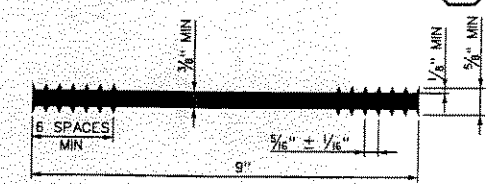


DETAIL CALLOUT

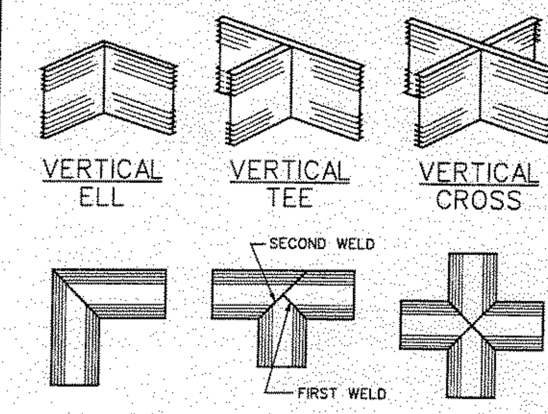




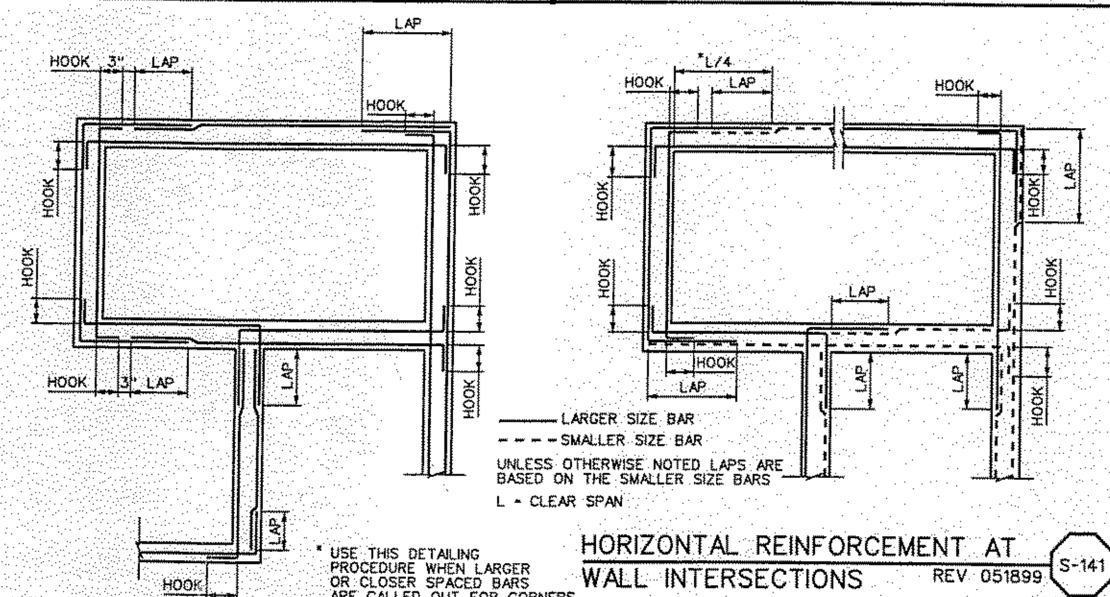
6" FLATSTRIP WATERSTOP
REV 040699 (S-105)



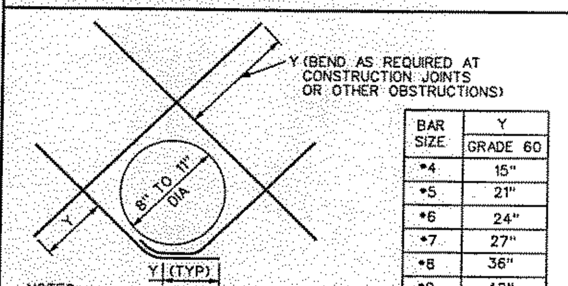
9" FLATSTRIP WATERSTOP
REV 040699 (S-106)



PREFABRICATED WATERSTOP JOINTS
REV 040699 (S-108)



HORIZONTAL REINFORCEMENT AT WALL INTERSECTIONS
REV 051899 (S-141)



BAR SIZE	Y GRADE 60
#4	15"
#5	21"
#6	24"
#7	27"
#8	36"
#9	42"

NOTES:

1. CUT NORMAL REINFORCEMENT 2" CLEAR OF OPENING
2. DIAGONAL BARS TO BE PLACED:
   A) AT CENTERLINE OF WALL OR SLAB WHERE ONE LAYER OF REINFORCEMENT IS PROVIDED
   B) AT EACH FACE OF WALL OR SLAB WHERE TWO LAYERS OF REINFORCEMENT ARE PROVIDED
3. UNLESS OTHERWISE NOTED, SIZE OF DIAGONAL BARS SHALL BE THE SIZE OF THE LARGEST NORMAL REINFORCING BAR CUT
4. THIS DETAIL TO BE USED ONLY WHEN CALLED FOR ON THE DRAWINGS OR WHEN NO OTHER DETAIL IS SPECIFIED

DIAGONAL REINFORCEMENT AT CIRCULAR OPENINGS (8" - 11" DIA)
REV 080599 (S-142)

ISSUED FOR REVIEW PURPOSES ONLY NOT FOR DISTRIBUTION

File: \\usdenicadsrv1\projects\colosprings\chestnt_ss\str\gs01.dgn

Job No: 1700474

REV	DATE	BY	DESCRIPTION
RD	9/3/04	PAU	RECORD DRAWING

SCALE: AS SHOWN

WARNING: 0 1/2 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED A BERNARDES
DRAWN A BERNARDES
CHECKED D. ROONGSANG

RECORD DRAWING
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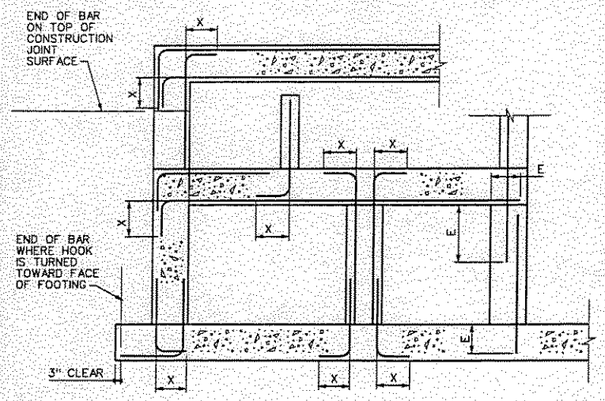
I-25 / CIMARRON REPLACEMENT SEWER PROJECT

CSU PROJECT NO. 2003-S049

STRUCTURAL
GENERAL NOTES AND STANDARD DETAIL I

SHEET GS-1

Plot Date: 02-SEP-2004 10:38
User: paude



SECTION

LENGTH (*)			
BAR SIZE	HOOK X	LAP	EMBEDMENT E
*3	6"	18" (24")	12" (16")
*4	8"	18" (24")	14" (19")
*5	10"	23" (30")	18" (24")
*6	12"	28" (37")	22" (29")
*7	14"	33" (43")	25" (33")
*8	16"	SEE TABLE BELOW	SEE TABLE BELOW
*9	19"		
*10	22"		
*11	24"		

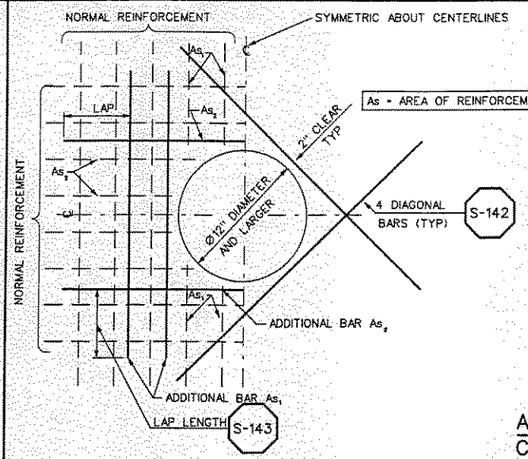
LENGTH (*)						
REBAR SIZE	FOR 1" TO < 2" CONCRETE COVER		FOR 2" TO < 3" CONCRETE COVER		FOR 3" AND LARGER CONCRETE COVER	
	REBAR SPACING (CENTER TO CENTER)		REBAR SPACING (CENTER TO CENTER)		REBAR SPACING (CENTER TO CENTER)	
	< 8"	≥ 8"	< 8"	≥ 8"	< 8"	≥ 8"
LAP						
*8	62" (81")	62" (81")	37" (49")	37" (49")	37" (49")	37" (49")
*9	99" (129")	79" (103")	69" (90")	55" (72")	49" (64")	42" (55")
*10	125"(163")	100"(130")	88" (115")	70" (91")	63" (82")	50" (65")
*11	154"(201")	123"(160")	108"(141")	86" (112")	77" (101")	62" (81")
EMBEDMENT E						
*8	48" (63")	48" (63")	29" (38")	29" (38")	29" (38")	29" (38")
*9	77" (101")	61" (80")	54" (71")	43" (56")	38" (50")	33" (53")
*10	97"(127")	77" (101")	68" (89")	54" (71")	49" (64")	39" (51")
*11	119"(155")	95" (124")	84" (110")	67" (88")	60" (78")	48" (63")

* USE LENGTH IN PARENTHESIS FOR WALL HORIZONTAL REBARS AND SLAB BARS WITH 12" OR MORE OF FRESH CONCRETE UNDERNEATH

NOTES:

1. USE LAP LENGTHS AS DETERMINED FROM THESE TABLES UNLESS SHOWN OTHERWISE
2. THE TABLES SHOWN ARE FOR f'c=4000psi AND fy=60,000psi
3. MULTIPLY THE LAP AND E SHOWN IN THESE TABLES BY 1.5 FOR EPOXY COATED REINFORCING
4. WHEN BARS OF DIFFERENT SIZES ARE LAP SPLICED, LAP LENGTH SHALL BE THE LARGER OF:
   EMBEDMENT LENGTH OF LARGER BAR
   LAP LENGTH OF SMALLER BAR
5. UNLESS NOTED OTHERWISE USE REBAR COUPLERS FOR SPLICES OF #11 AND LARGER BARS
6. ALL DOWEL BARS SHALL EXTEND AN EMBEDMENT LENGTH E INTO ANOTHER MEMBER OR ACROSS A CONSTRUCTION JOINT UNLESS SHOWN TO SPLICE WITH OTHER BARS OR TO EXTEND TO THE FAR FACE OF THE MEMBER AND END WITH A STANDARD HOOK

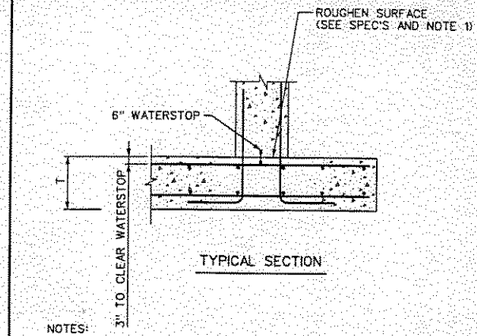
STANDARD 90° BAR HOOKS, EMBEDMENT LENGTHS AND LAP LENGTHS REV 010201 S-143



NOTES:

1. CUT NORMAL REINFORCEMENT AT OPENINGS: As1 AND As2 = ½ AREA OF CUT BARS TO BE ADDED ON EACH SIDE OF OPENING
2. ADDITIONAL BARS As3 AND As4 TO BE PLACED:
   A) AT CENTERLINE OF WALLS OR SLABS WHERE ONE LAYER OF REINFORCEMENT IS PROVIDED
   B) AT EACH FACE OF WALLS OR SLABS WHERE TWO LAYERS OF REINFORCEMENT ARE PROVIDED
3. INCREASE SIZE OF ADDITIONAL BARS AS NEEDED TO FIT WITHIN A DISTANCE OF 2 X WALL/SLAB THICKNESS FROM OPENING; PROVIDE 2" MIN CLEAR BETWEEN BARS
4. THIS DETAIL TO BE USED ONLY WHEN NO OTHER DETAIL IS INDICATED ON THE DRAWINGS
5. WHERE A SLAB OR INTERSECTING WALL CONNECTS WITHIN ONE WALL THICKNESS OF THE OPENING, ADDITIONAL BARS ON THAT SIDE MAY BE OMITTED

ADDITIONAL REINFORCEMENT AT CIRCULAR OPENINGS (12" DIA OR LARGER) REV 080599 S-144

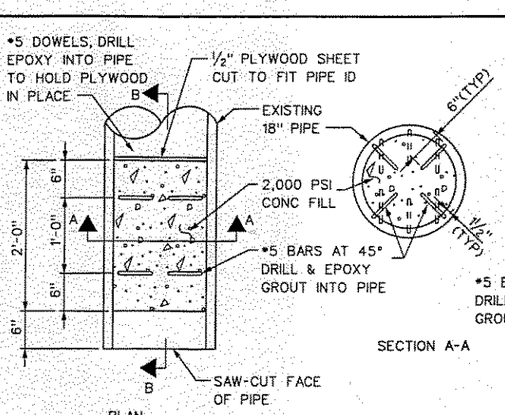


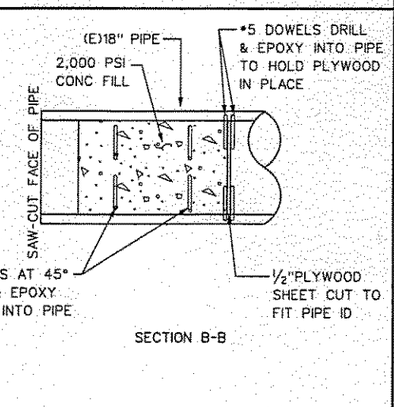
TYPICAL SECTION

NOTES:

1. IN ALL CONSTRUCTION JOINTS WITH WATERSTOPS, APPLY 2 COATS OF BOND BREAKER TO FACE OF JOINT, AVOID COATING WATERSTOP (AND SEALANT GROOVE WHERE USED).

DETAIL AT WALL CONNECTION REV 010201 S-150





SECTION A-A SECTION B-B

18" CONCRETE PLUG REV 102101 S-901

ISSUED FOR REVIEW PURPOSES ONLY NOT FOR DISTRIBUTION

REV	DATE	BY	DESCRIPTION
RD	9/3/04	PAU	RECORD DRAWING

SCALE: AS SHOWN

WARNING: 0 ½ 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED A BERNARDES
DRAWN A BERNARDES
CHECKED D. ROONGSANG

RECORD DRAWING

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MWH Colorado Springs Colorado

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I-25 / CIMARRON REPLACEMENT SEWER PROJECT

CSU PROJECT NO. 2003-5049

STRUCTURAL GENERAL NOTES AND STANDARD DETAIL II

SHEET GS-2

Job No: 1700474
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Plot Date: 02-SEP-2004 10:39
User: paude
File: \\usden1cadrv1\projects\colosprings\chestnt_es\str\s01.dgn
Job No: 1700474

RD

JUNCTION BOX (MANHOLE NO. 7) REPLACED WITH
6.0-FT DIA. PRECAST MANHOLE WITH CAST-IN-PLACE BASE.

ISSUED FOR
REVIEW PURPOSES ONLY
NOT FOR DISTRIBUTION

REV	DATE	BY	DESCRIPTION
RD	9/3/04	PAU	RECORD DRAWING

SCALE: AS SHOWN

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED A BERNARDES
DRAWN A BERNARDES
CHECKED D. ROONGSANG

RECORD DRAWING

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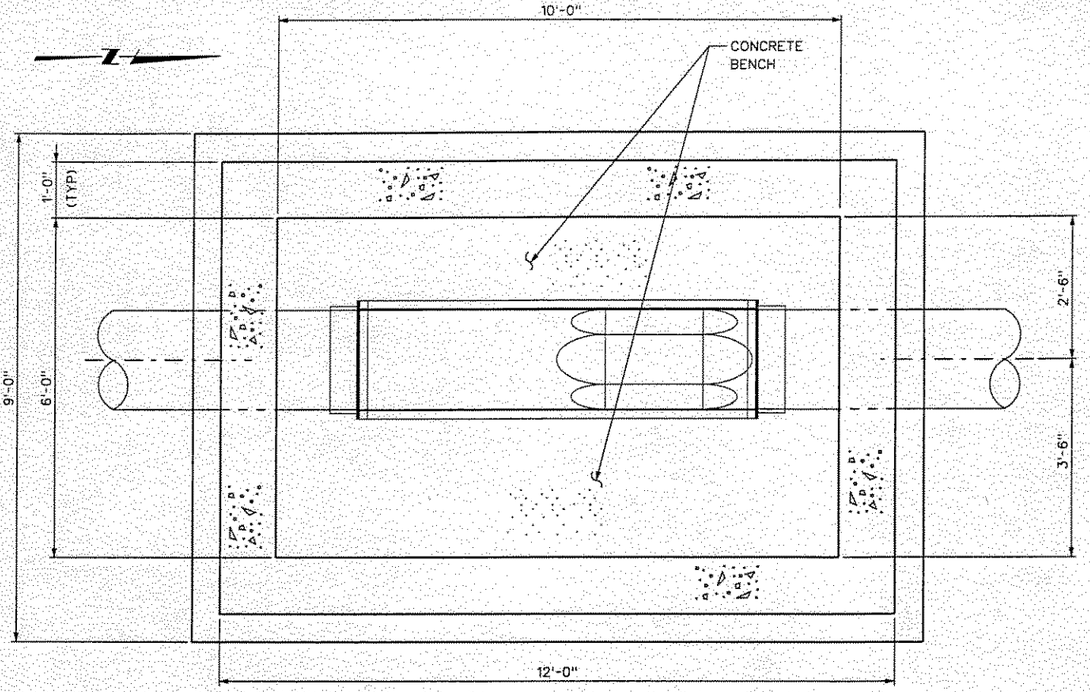
I-25 / CIMARRON
REPLACEMENT
SEWER PROJECT

CSU PROJECT NO. 2003-5049

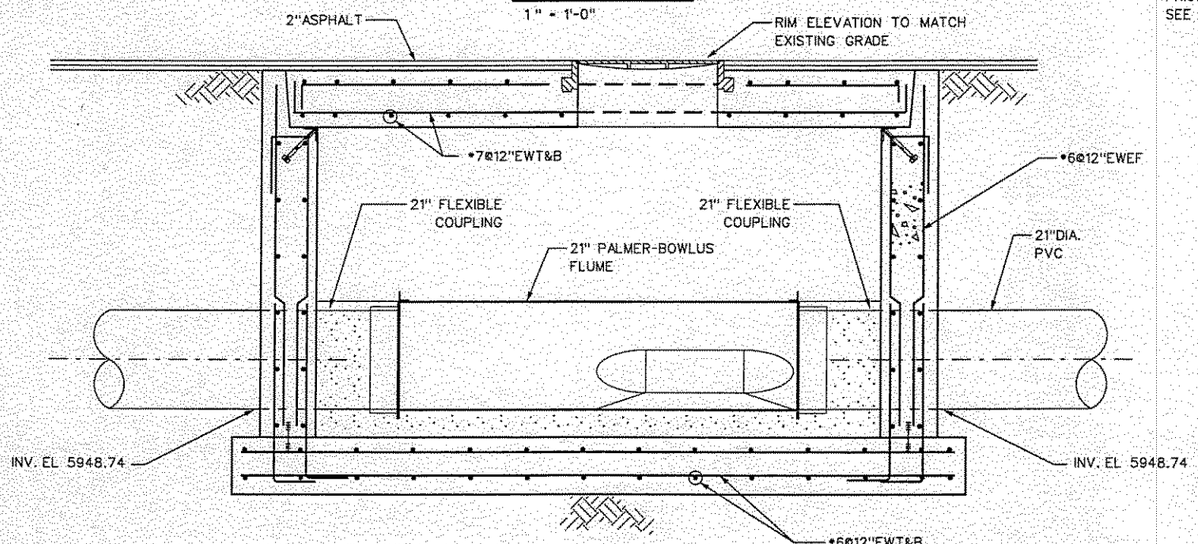
STRUCTURAL - MANHOLE 7

SHEET
S-1

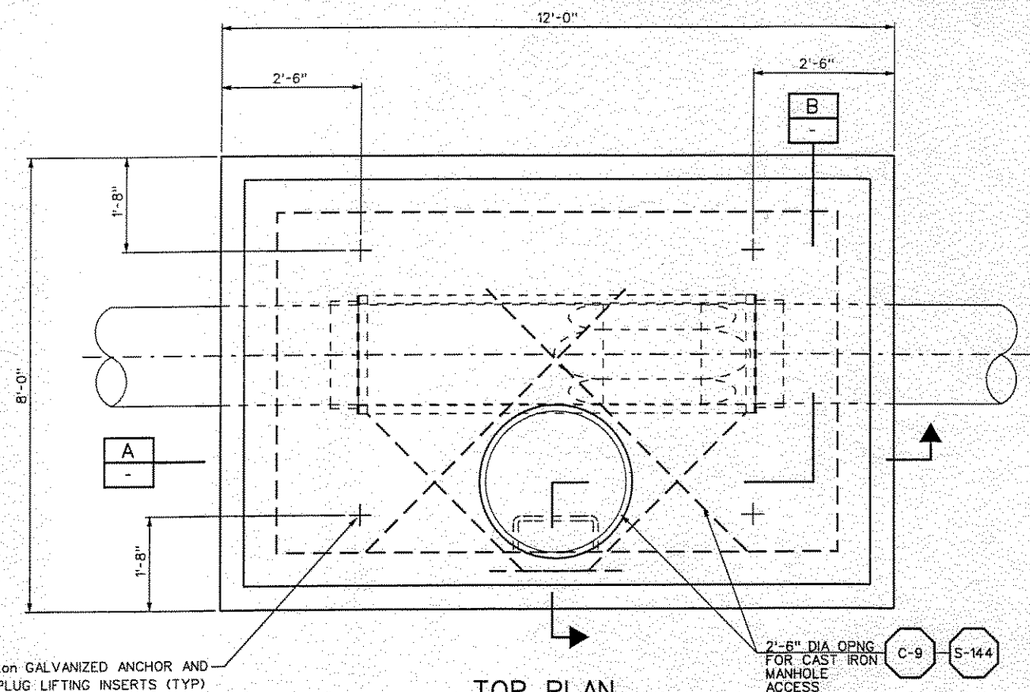
User: poude Plot Date: 02-SEP-2004 10:40
File: \\usdenfcadsrv1\projects\colosprings\chestnt_sa\str\s02.dgn
Job No: 1700474



FLOOR PLAN
1" = 1'-0"

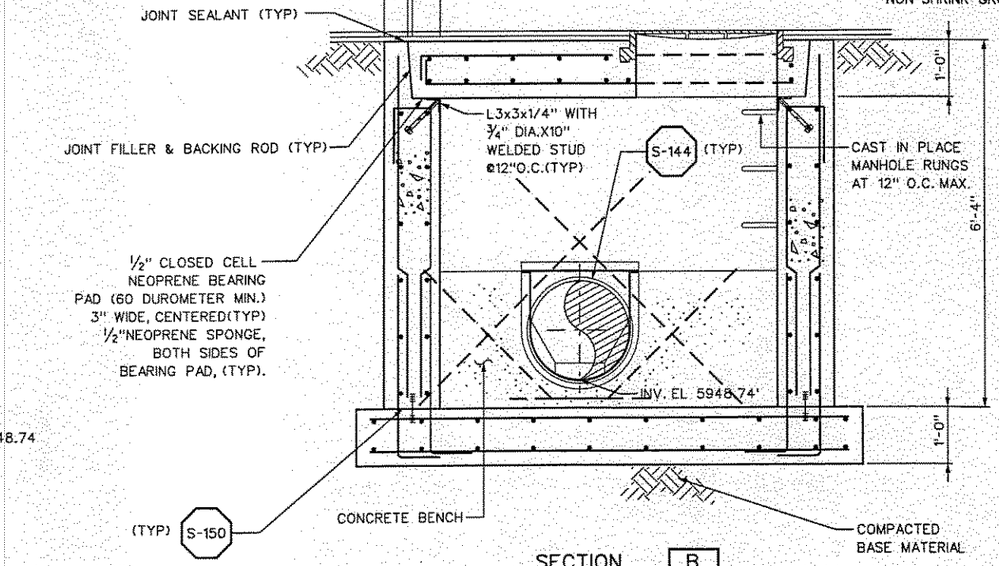


SECTION A
1" = 1'-0"



TOP PLAN
1" = 1'-0"

NOTE: FILL ALL ANULAR SPACES BETWEEN WALL AND PIPE AND FLUME WITH NON-SHRINK GROUT



SECTION B
1" = 1'-0"

ISSUED FOR REVIEW PURPOSES ONLY NOT FOR DISTRIBUTION

REV	DATE	BY	DESCRIPTION
RD	9/3/04	PAU	RECORD DRAWING

SCALE: AS SHOWN

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED A BERNARDES
DRAWN A BERNARDES
CHECKED D. ROONGSANG

RECORD DRAWING
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I-25 / CIMARRON REPLACEMENT SEWER PROJECT

CSU PROJECT NO. 2003-S049

STRUCTURAL - METER VAULT

SHEET S-2

Plot Date: 02-SEP-2004 10:40
User: paude
Job No: 17004474
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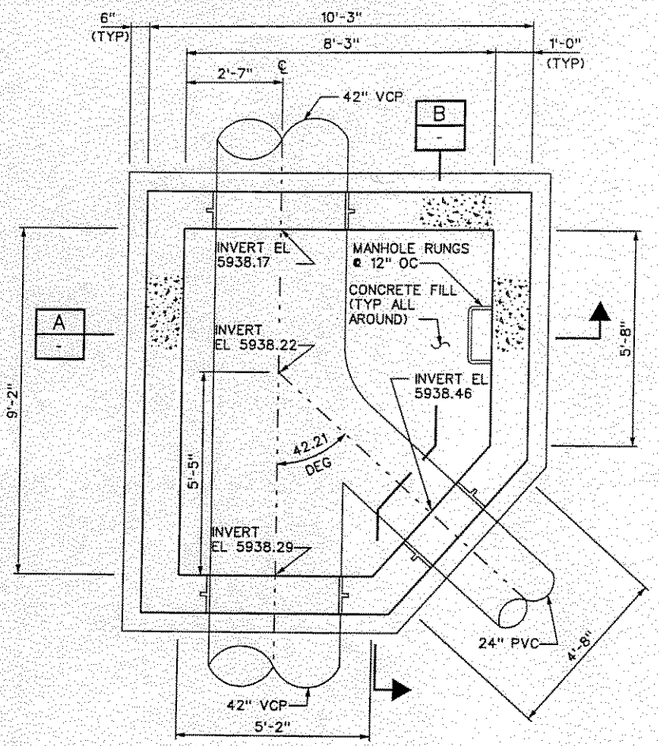
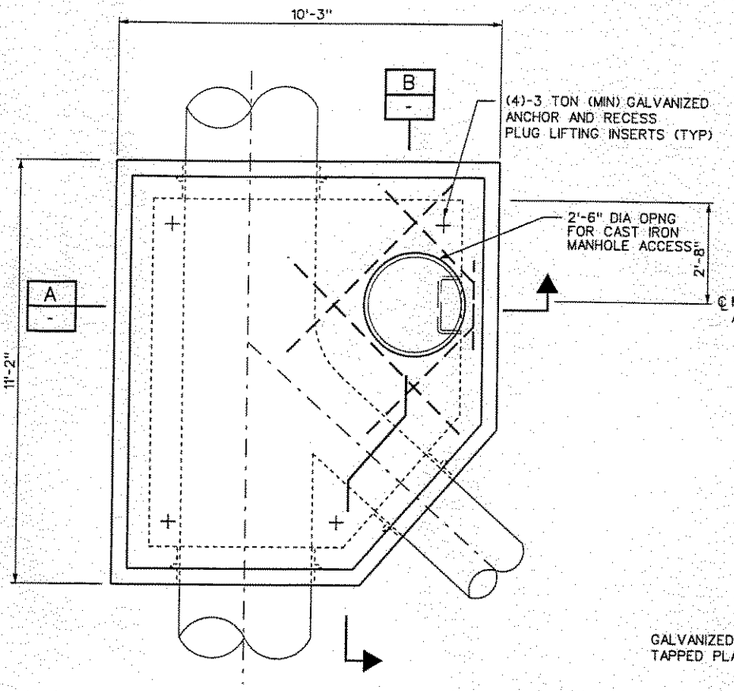


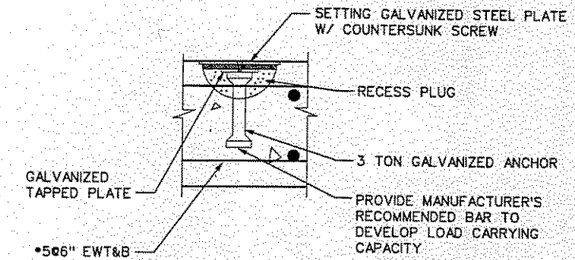
FOUNDATION PLAN



TOP PLAN

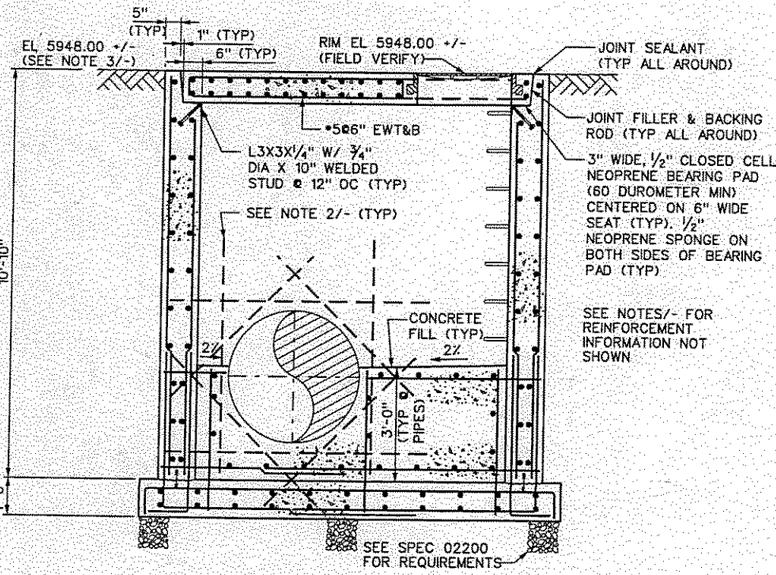
NOTES:

1. ALL REINFORCING SHOWN IN CONCRETE WALLS AND FOUNDATION SLAB SHALL BE •7@12" UNLESS NOTED OTHERWISE
2. SEE S-144 FOR ADD'L REINFORCING @ CIRCULAR OPENINGS (TYP)
3. VERIFY AND COORDINATE ALL ELEVATIONS WITH CIVIL DRAWINGS
4. ALL REINFORCING IN CONCRETE FILL SHALL BE •6@12" EW UNLESS NOTED OTHERWISE

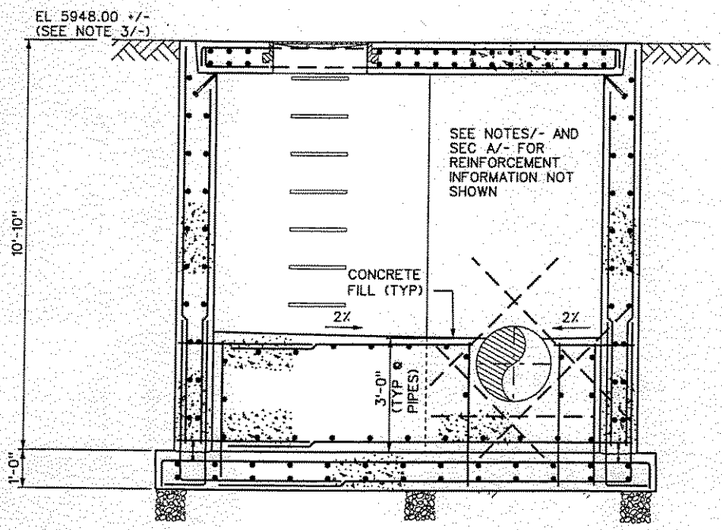


LIFTING INSERT DETAIL

NTS



SECTION A -



SECTION B -

ISSUED FOR REVIEW PURPOSES ONLY NOT FOR DISTRIBUTION

REV	DATE	BY	DESCRIPTION
RD	9/3/04	PAU	RECORD DRAWING
1	6/23/03	CAM	WORK CHANGE DIRECTIVE #1

SCALE: ½"=1'-0"

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

DESIGNED B. CROOK
DRAWN B. CROOK
CHECKED

RECORD DRAWING

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I-25 / CIMARRON REPLACEMENT SEWER PROJECT

CSU PROJECT NO. 2003-S049

STRUCTURAL
NEW JUNCTION CHAMBER

SHEET S-3