

CITY OF PUEBLO, COLORADO

ADDENDUM NO. 3

PROJECT NO. 17-005 (CI1703)

Outlook Blvd. & Wills Blvd. Street & Storm Sewer Construction

1. Included with this addendum is the Revised Geotechnical Evaluation Report, from Kleinfelder, dated February 13, 2017

Following are responses to bidder's questions.

Q1. Will there be an earthwork/roadway excavation bid item?

Response: Article 1-B Request for Quotations has been revised and now includes an earthwork bid item. Article 2 – Special Provisions has been updated and now includes approximate earthwork quantities.

Q2. Will there be a Rock Excavation bid item?

Response: The Kleinfelder reports do not anticipate the rock to be difficult to excavate and we are not providing a separate bid item for Rock Excavation.

Q3. Who is responsible for designing and supporting Xcel's gas line that is within the excavation area of the storm sewer?

Response: The contractor is responsible for protecting the existing gas line in place during all excavation and backfill.

Q4. Is blasting allowed for this project?

Response: Blasting will be allowed if difficult excavation is encountered.

Q5. Will ADA curb ramps be constructed at all 4 corners within the intersection of Will Blvd. & Outlook Blvd.?

Response: The only corner that will be constructed with ADA ramps and tactile bands is the NE corner.

Q6. Will there be a bid item for ADA ramps?

Response: The concrete within the curb ramps has been included within the bid item for 6" Concrete.

Q7. Is there an electrical plan/drawing for the Street Lights bid item?

Response: The Street Lights bid item has been removed from the project. Street lighting and all electrical will be installed by others.

Q8. Who is responsible for all construction staking?

Response: Section 2.19 – CONSTRUCTION STAKING AND LAYING OUT WORK

The Contractor shall lay out his own work and be responsible for all lines, elevations and measurements of grading, utilities and other work executed by him under this contract except as otherwise indicated herein.

Q9. Are the barricades a.) temporary or permanent and b.) is there a detail?

Response: The barricades to be constructed are permanent and the typical detail is found in The City of Pueblo Standard Specifications and Details located at: <https://www.pueblo.us/DocumentCenter/Home/View/157>

Q10. Please clarify and provide details for the “Water Main Lowering – 12” bid item.

Response: The bid item has been removed from the project.

Q11. Please clarify the bid item “energy dissipater”.

Response: The bid item has been removed from the project.

Q12. Please clarify the bid item “6” Curb Head”.

Response: The bid item has been renamed to Construct 6” Concrete Curb Head.

Q13. Please provide a topo of the existing ground along the alignment of the storm line as there are large stockpiles of excavated dirt.

Response: The stock pile of dirt will be removed by others prior to the installation of the storm line.

Q14. Is there a detail for the Install City Centerline Monument bid item?

Response: The detail can be found in The City of Pueblo Standard Specifications and Details located at: <https://www.pueblo.us/DocumentCenter/Home/View/157>

Q15. Where will the excess excavation be hauled?

Response: The contractor will be responsible for the offsite disposal of all excess excavated dirt.

Q16. Is the existing 12” sanitary sewer in Outlook Blvd. live?

Response: The existing 12” sanitary sewer in Outlook is live. Bypass pumping will be required for the service installations and the cost is incidental to the install bid item.

Q17. Will erosion control blankets be required along the 1:1 slope in Add Alternate No. 1.

Response: Yes, erosion control blankets will be required per the detail shown on plan sheet 11 of 11.

This Addendum No. 3 to the above project shall become a part of the Contract Documents, and shall be binding in all respects.

Information contained in this Addendum No. 3 shall supersede any information presented in the specifications.

The bidders shall permanently affix this Addendum No. 3 to the Contract Documents and Specifications so it will be turned in with the bid.

The undersigned bidder acknowledges receipt of this Addendum No. 3.

Received by: _____

Firm Name: _____

Address: _____

Date: _____

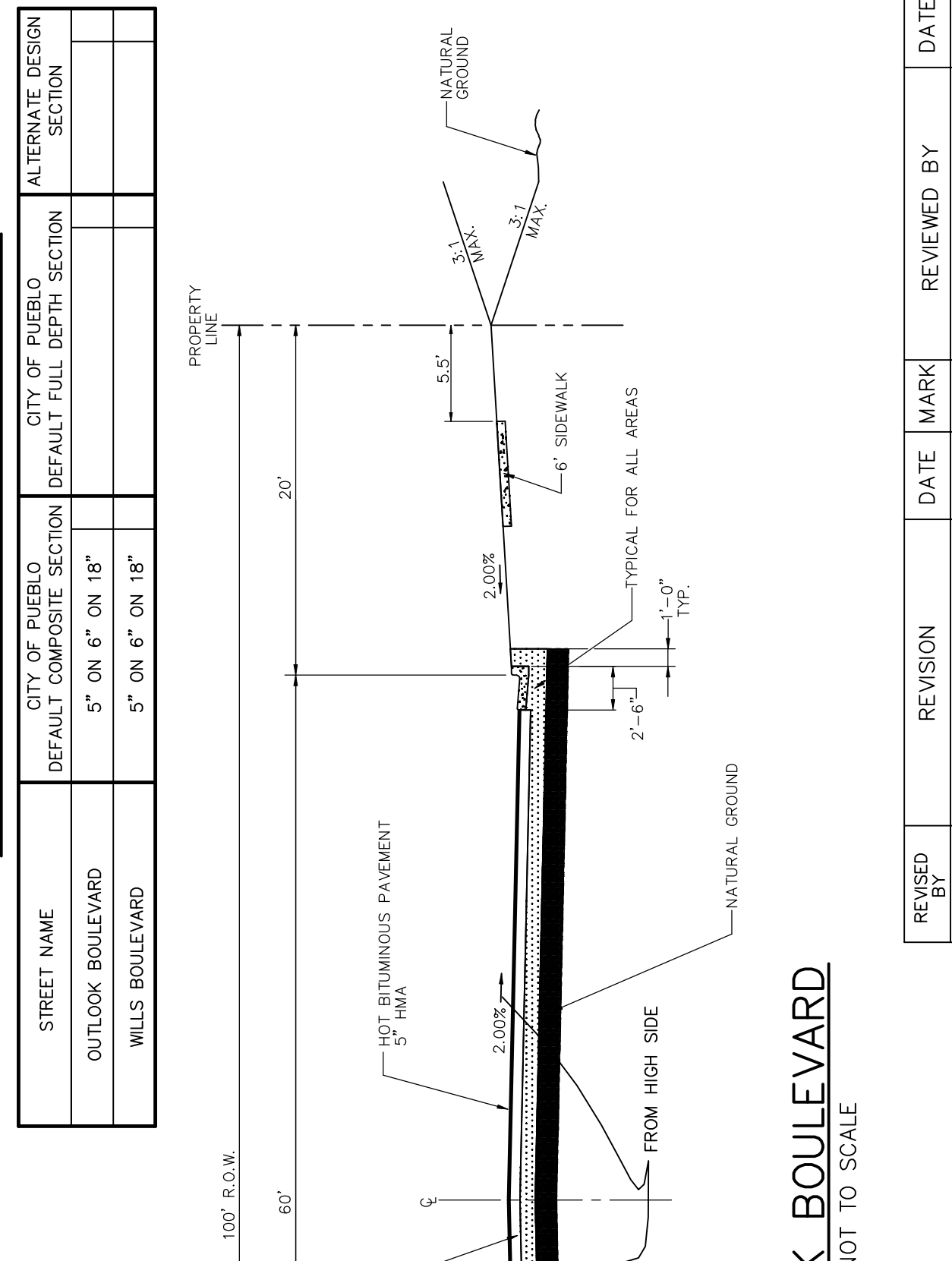
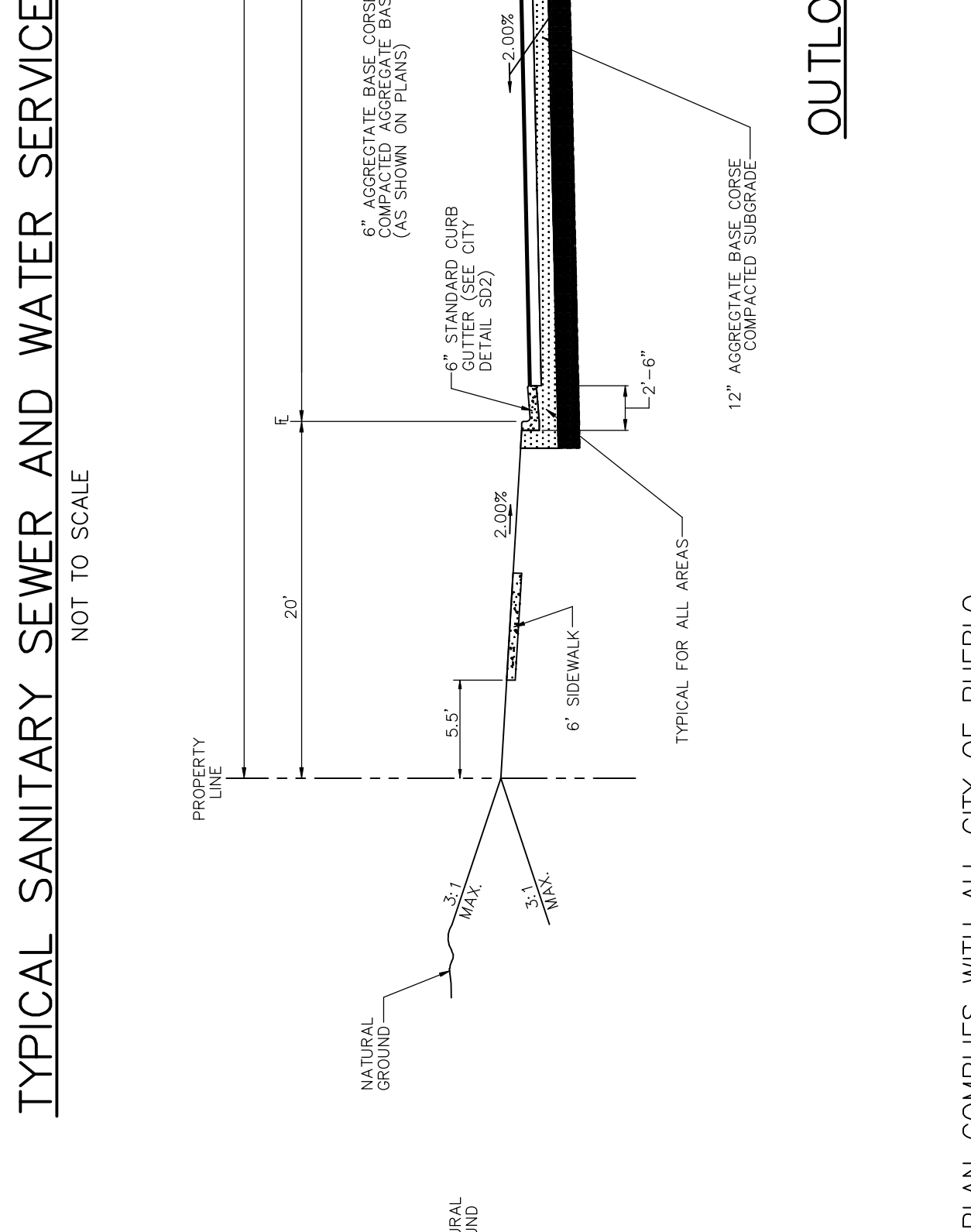
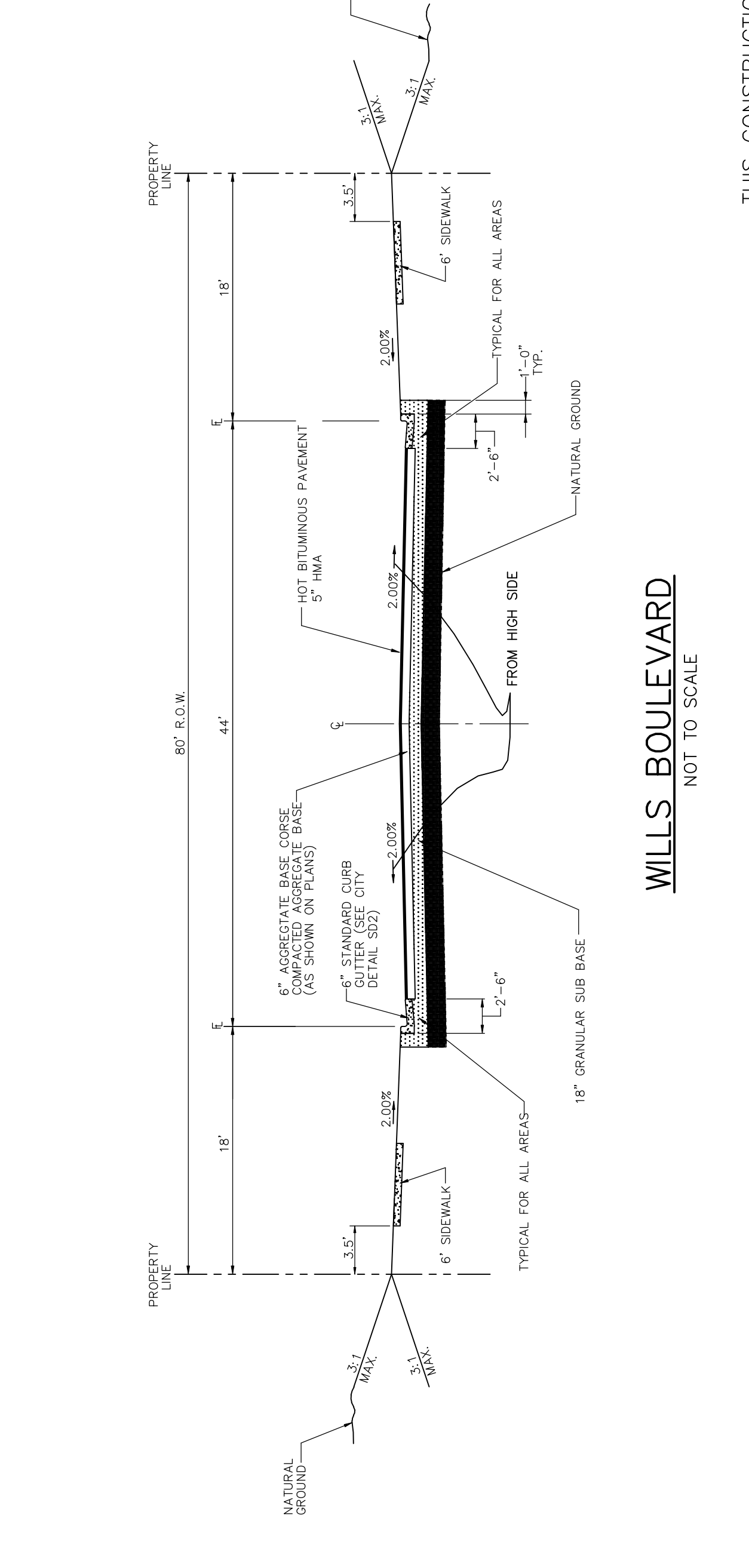
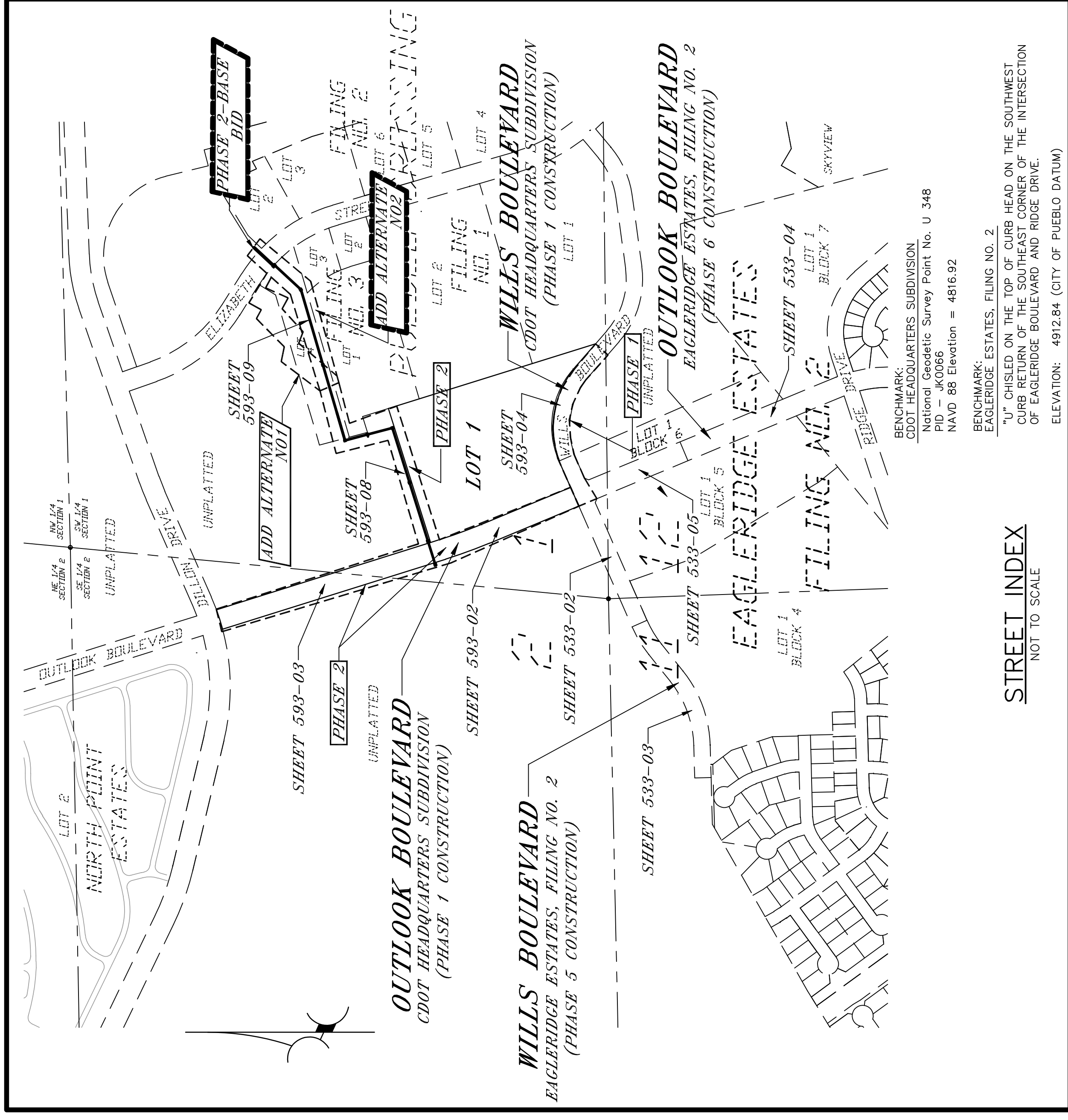
Phone: _____ Fax: _____

E-mail: _____

Attachments:

Kleinfelder Revised Geotechnical Evaluation Report dated February 13, 2017
Plan Drawing Sheets 1 thru 11

CDOT HEADQUARTERS SUBDIVISION



STREET PAVEMENT SECTION

| STREET NAME | CITY OF PUEBLO | CITY OF PUEBLO | ALTERNATE DESIGN SECTION |
|-------------------|-----------------|----------------|--------------------------|
| OUTLOOK BOULEVARD | 5" ON 6" ON 18" | | |
| WILLS BOULEVARD | 5" ON 6" ON 18" | | |

THIS CONSTRUCTION PLAN COMPLIES WITH ALL CITY OF PUEBLO DESIGN STANDARDS WITH THE MOST CURRENT STANDARD CONSTRUCTION SPECIFICATIONS AND STANDARD DETAILS.

GENERAL NOTES:

- ELEVATIONS SHOWN ARE FLOW LINE CUTTER EXCEPT AS NOTED.
- PROFILE STATIONING IS BASED ON CENTERLINE OF R.O.W. EXCEPT AS NOTED.
- 20' CURB RADIUS AT INTERSECTIONS EXCEPT AS NOTED.
- | | |
|-------|-------------------------------|
| (E) = | EXISTING ELEVATION |
| BC | = BEGINNING CURVE |
| CR | = CURB RETURN |
| EC | = END CURVE |
| CS | = CENTER POINT |
| GB | = GRADE BREAK |
| PVC | = POINT OF VERTICAL CURVE |
| PVI | = POINT OF VERTICAL INTERSECT |
| PVT | = POINT OF VERTICAL TANGENT |
| FL | = FINISHED FLOOR SECTION |
- FOR PAVEMENT DESIGN, CURB AND GUTTER, AND SIDEWALK, SEE INDIVIDUAL SHEETS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM THE CITY OF PUEBLO. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
- EXISTING SANITARY SEWER MAINS HAVE BEEN "HOT TAPPED" AND INVERT ELEVATIONS FIELD VERIFIED BY THE CONTRACTOR.
- DESIGN AND INSTALLATION TOLERANCES FOR ON-SITE UTILITIES IS CRITICAL. CONTRACTOR SHALL EXERCISE EXTREME CARE DURING UTILITY INSTALLATION TO INSURE THAT DESIGN GRADES ON ALL UTILITIES IS MET. FAILURE TO CONFORM TO DESIGN ELEVATIONS MAY RESULT IN UTILITY CONFLICTS WHICH WILL BE THE CONTRACTOR'S RESPONSIBILITY. REINSTALLATION TO BE BORN SOLELY BY THE CONTRACTOR.
- ALL NEW CONSTRUCTION TO CONFORM TO "STANDARD" CONSTRUCTION SPECIFICATIONS AND STANDARD DETAILS FOR CITY OF PUEBLO, COLORADO (MARCH 28, 2009)". ANY ASPHALT REMOVED IS TO BE REPLACED TO MEET CITY OF PUEBLO STANDARD SPECIFICATIONS. REFER TO STANDARD CONSTRUCTION SPECIFICATIONS AND STANDARD DETAILS FOR CITY OF PUEBLO, COLORADO. SHEET NO. S06.
- SANITARY SEWER WYES ARE LOCATED AS SHOWN ON TITLE SHEET EXCEPT AS NOTED ON INDIVIDUAL SHEETS. WYES ARE TO BE 4' EXCEPT AS NOTED.
- SANITARY SEWER SERVICES SHALL BE SDR 35 PVC PIPE.
- ALL SANITARY SEWER PIPE LENGTHS ARE FROM INSIDE WALL OF MANHOLE TO INSIDE WALL OF MANHOLE.
- NOTES ON SANITARY SEWER PIPE AT CROSSINGS SHALL BE NO CLOSER THAN 10' FROM EXISTING OR PROPOSED WATER MAINS.
- SEE "STORM DRAINAGE DESIGN CRITERIA AND DRAINAGE POLICES FOR THE CITY OF PUEBLO, COLORADO (JUNE 9, 1997)".
- ALL STORM DRAIN PIPES ARE TRUE LINEAL FEET OF PIPE.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL DETAILS WITH THE CITY OF PUEBLO, DEPARTMENT OF PUBLIC WORKS, PRIOR TO CONSTRUCTION.
- ALL MANHOLE, VALVE BOX, AND MONUMENT BOX CONSTRUCTION SHALL INCLUDE ASPHALT COLLARS PER CITY OF PUEBLO STANDARD DETAILS.
- WATER LINE INSTALLATION WILL BE UNDER WATER BOARD INSPECTION AND ALL CROSSINGS WITH SANITARY SEWER SHALL HAVE A MINIMUM SEPARATION OF 18" ABOVE SANITARY SEWER LINE, EXCEPT AS NOTED ON INDIVIDUAL SHEETS. JOINTS IN WATER LINE PIPES SHALL NOT BE CLOSER THAN 3' UNLESS OTHERWISE NOTED. CROSSING - ALL WATER SERVICE LINES SHALL BE 1 1/2" TYPE K COPPER UNLESS NOTED OTHERWISE.
- CENTER 20' LENGTHS OF STORM SEWER OVER WATER LINES OR ENCASE JOINTS WITH CONCRETE.
- SEE WATER BOARD SHEETS FOR GENERAL NOTES AND DETAILS.
- HPIPE PIPE MANUFACTURED BY ADS (NO SUBSTITUTIONS) WILL BE ALLOWED AS A SUBSTITUTE FOR RCP STORM SEWER PIPE AT THE OWNERS OPTION. INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH STANDARDS AS ESTABLISHED BY THE CITY OF PUEBLO, DEPARTMENT OF PUBLIC WORKS.
- HIGH DEFLECTION COUPLINGS MAY BE REQUIRED FOR CONSTRUCTION OF HORIZONTAL AND VERTICAL CURVES IN WATER MAINS. SEE TABLE 1.
- WORKING GENERAL DETAIL SHEET 1.
- DISCREPANCIES MAY EXIST BETWEEN THESE PLANS OR BETWEEN THESE PLANS AND FIELD CONDITIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING THE ENTIRE SET OF CONSTRUCTION PLANS AND FIELD CONDITIONS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM THE CITY OF PUEBLO. CONTRACTOR SHALL SO WILL PLACE THE ENTIRE RESPONSIBILITY AND COSTS ASSOCIATED FOR RESOLUTION OF ANY CONFLICTS SOLELY UPON THE CONTRACTOR.
- ALL STORM SEWER INSTALLED SHALL BE CLEANED AND CAMERA INSPECTED. PROVIDE CITY WITH VIDEO AND LOG FOR REVIEW AND ACCEPTANCE.
- SEE SHEET 10 FOR THE BMP NOTES AND STORM SEWER DETAILS.

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TABLE 1

| WATER MAIN RADIUS | MAXIMUM LENGTH BETWEEN COUPLINGS |
|-------------------|----------------------------------|
| 200" - 229" | 30' |
| 230" - 343" | 30' |
| 344" - 458" | 40' |
| 459" - 573" | 50' |
| 574" - 687" | 60' |
| 688" - 802" | 70' |
| 803" - 917" | 80' |
| 918" - 1031" | 90' |
| 1032" - 1146" | 100' |

CITY OF PUEBLO STANDARD SPECIFICATIONS

| | |
|------------|---|
| ARTICLE 4 | - CONCRETE |
| ARTICLE 5 | - CONCRETE CURB & GUTTER |
| ARTICLE 6 | - CONCRETE SIDEWALK AND DRIVEWAYS |
| ARTICLE 7 | - CONCRETE PAVEMENT |
| ARTICLE 8 | - ASPHALT BASE CONSTRUCTION |
| ARTICLE 9 | - EARTHWORK |
| ARTICLE 10 | - HOT BITUMINOUS PAVEMENT |
| ARTICLE 11 | - PLANT MIXED SEAL COAT (ASPHALTIC OVERLAY) |
| ARTICLE 12 | - SANITARY SEWERS |
| ARTICLE 13 | - STORM SEWERS |
| ARTICLE 14 | - EXCAVATION WITHIN PUBLIC RIGHT OF WAY |

WATER SERVICE DETAIL
NOT TO SCALE

WATER SERVICE DETAIL
NOT TO SCALE

SHEET INDEX

| SHEET NO. | TITLE |
|-----------|-----------------------------------|
| 593-01 | OUTLOOK BOULEVARD |
| 593-02 | WILLS BOULEVARD |
| 593-03 | OUTLOOK BOULEVARD |
| 593-04 | OUTLOOK BOULEVARD |
| 593-05 | OUTLOOK BOULEVARD |
| 593-06 | OUTLOOK BOULEVARD |
| 593-07 | OUTLOOK BOULEVARD |
| 593-08 | OUTLOOK BOULEVARD |
| 593-09 | OUTLOOK BOULEVARD |
| 593-10 | STORM SEWER DETAILS AND BMP NOTES |
| 593-11 | EFFLUENT DRAINAGE DETAILS |

WATER SERVICE DETAIL
NOT TO SCALE

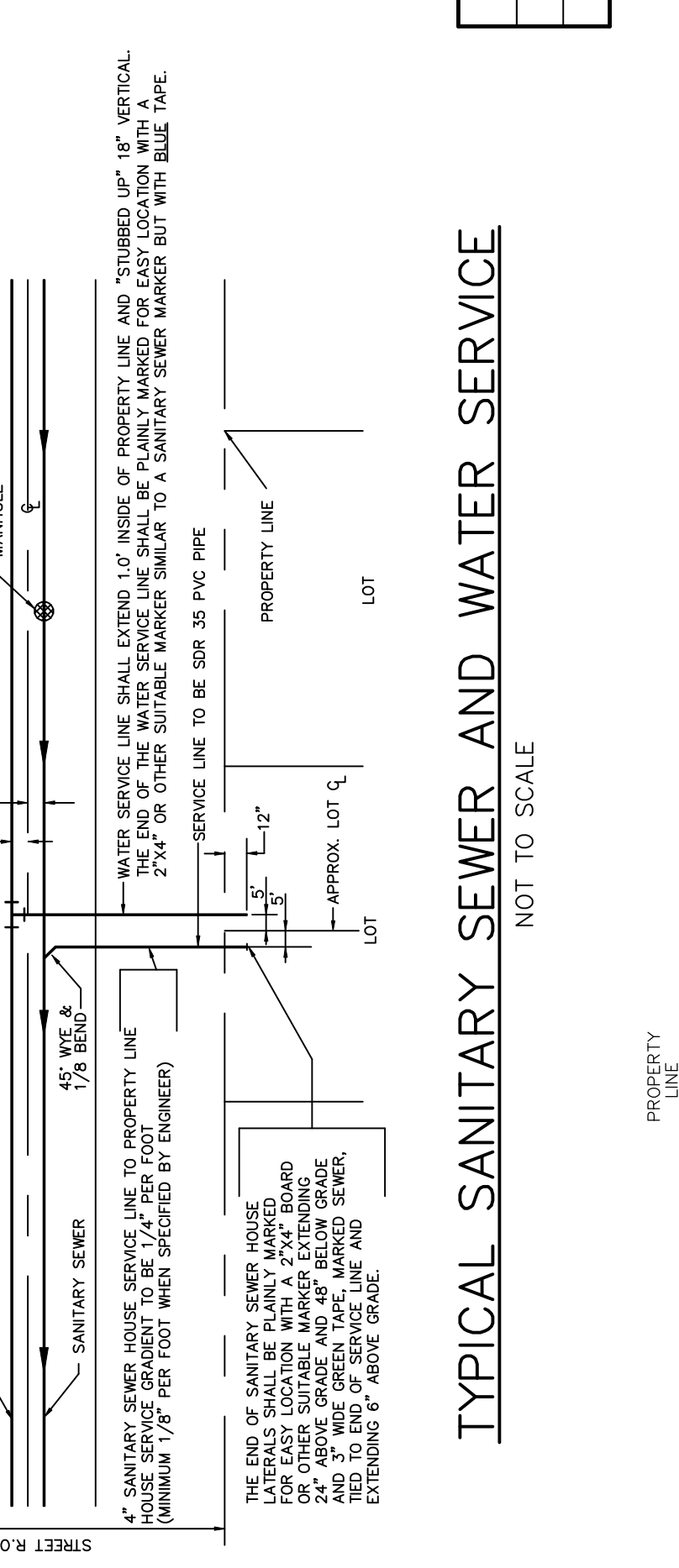
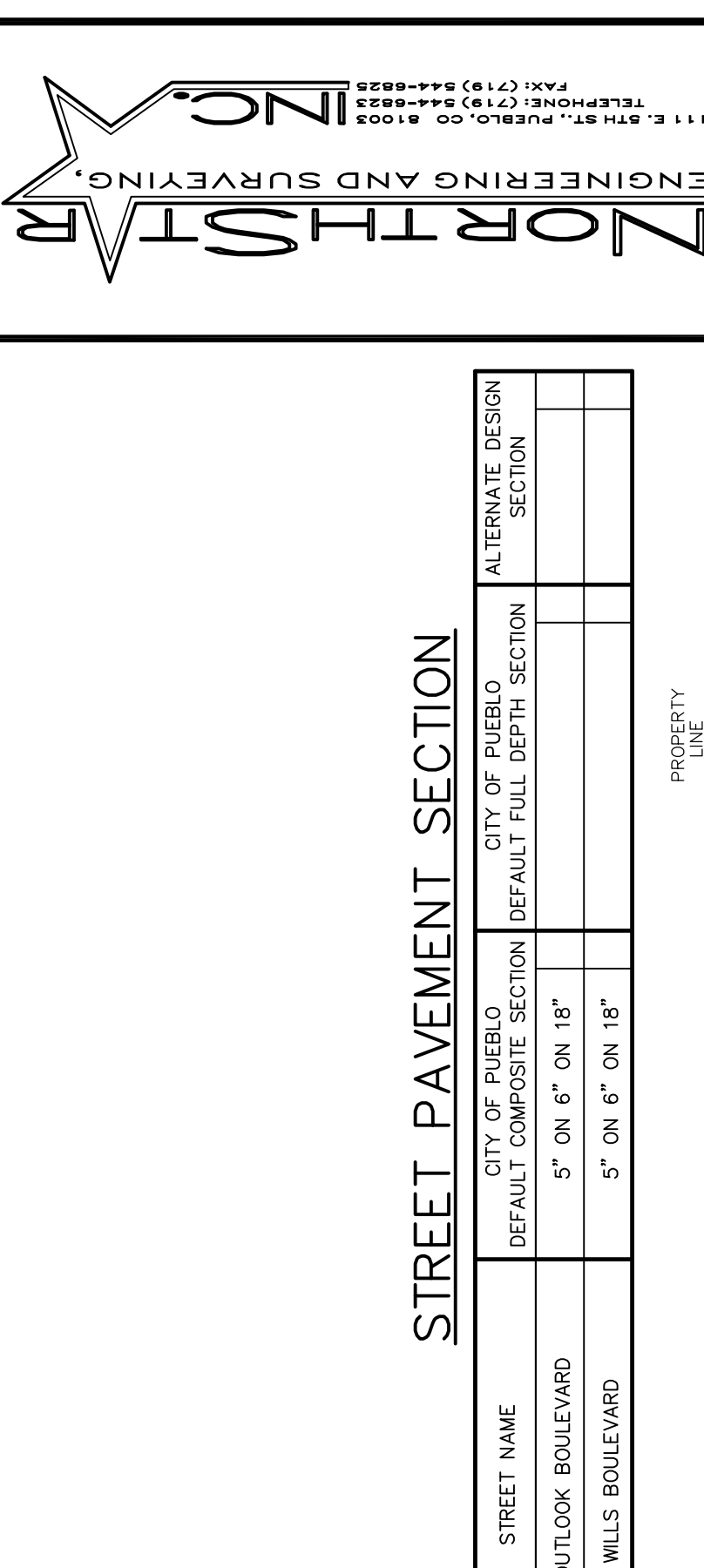
SUPPLEMENTAL SHEET INDEX

| SHEET NO. | TITLE |
|-----------|--|
| 533-01 | WILLS BOULEVARD (EAGLERIDGE ESTATES, FILING NO. 2) |
| 533-02 | WILLS BOULEVARD (EAGLERIDGE ESTATES, FILING NO. 2) |
| 533-03 | WILLS BOULEVARD (EAGLERIDGE ESTATES, FILING NO. 2) |
| 533-04 | WILLS BOULEVARD (EAGLERIDGE ESTATES, FILING NO. 2) |
| 533-05 | WILLS BOULEVARD (EAGLERIDGE ESTATES, FILING NO. 2) |
| 533-06 | WILLS BOULEVARD (EAGLERIDGE ESTATES, FILING NO. 2) |
| 533-07 | WILLS BOULEVARD (EAGLERIDGE ESTATES, FILING NO. 2) |
| 533-08 | WILLS BOULEVARD (EAGLERIDGE ESTATES, FILING NO. 2) |
| 533-09 | WILLS BOULEVARD (EAGLERIDGE ESTATES, FILING NO. 2) |
| 533-10 | WILLS BOULEVARD (EAGLERIDGE ESTATES, FILING NO. 2) |
| 533-11 | WILLS BOULEVARD (EAGLERIDGE ESTATES, FILING NO. 2) |
| 533-12 | WILLS BOULEVARD (EAGLERIDGE ESTATES, FILING NO. 2) |
| 533-13 | WILLS BOULEVARD (EAGLERIDGE ESTATES, FILING NO. 2) |
| 533-14 | WILLS BOULEVARD (EAGLERIDGE ESTATES, FILING NO. 2) |
| 533-15 | WILLS BOULEVARD (EAGLERIDGE ESTATES, FILING NO. 2) |
| 533-16 | WILLS BOULEVARD (EAGLERIDGE ESTATES, FILING NO. 2) |
| 533-17 | WILLS BOULEVARD (EAGLERIDGE ESTATES, FILING NO. 2) |
| 533-18 | WILLS BOULEVARD (EAGLERIDGE ESTATES, FILING NO. 2) |
| 533-19 | WILLS BOULEVARD (EAGLERIDGE ESTATES, FILING NO. 2) |
| 533-20 | WILLS BOULEVARD (EAGLERIDGE ESTATES, FILING NO. 2) |
| 533-21 | WILLS BOULEVARD (EAGLERIDGE ESTATES, FILING NO. 2) |
| 533-22 | WILLS BOULEVARD (EAGLERIDGE ESTATES, FILING NO. 2) |
| 533-23 | WILLS BOULEVARD (EAGLERIDGE ESTATES, FILING NO. 2) |

STREET INDEX
NOT TO SCALE

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CDOT HEADQUARTERS SUBDIVISION

PROJECT NAME CDOT HEADQUARTERS SUBDIVISION

SHEET TITLE TITLE SHEET

DATE 11-03-16

DESIGN BY JCS/MJC

DRAWN BY DJA

CHECKED BY KKK

FILE 593-01.DWG

JOB NO. 1502801

SHEET 1 OF 11

SCALE: AS SHOWN

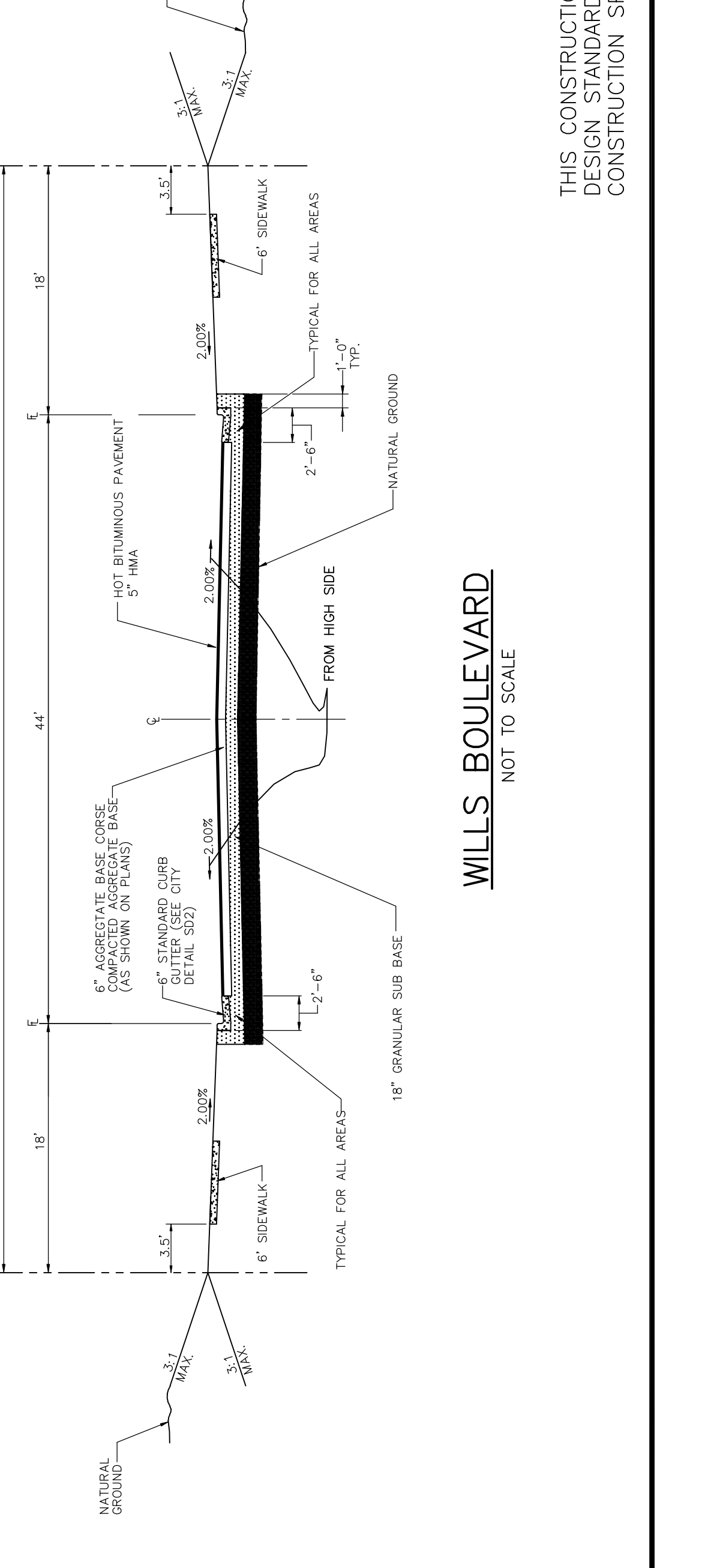
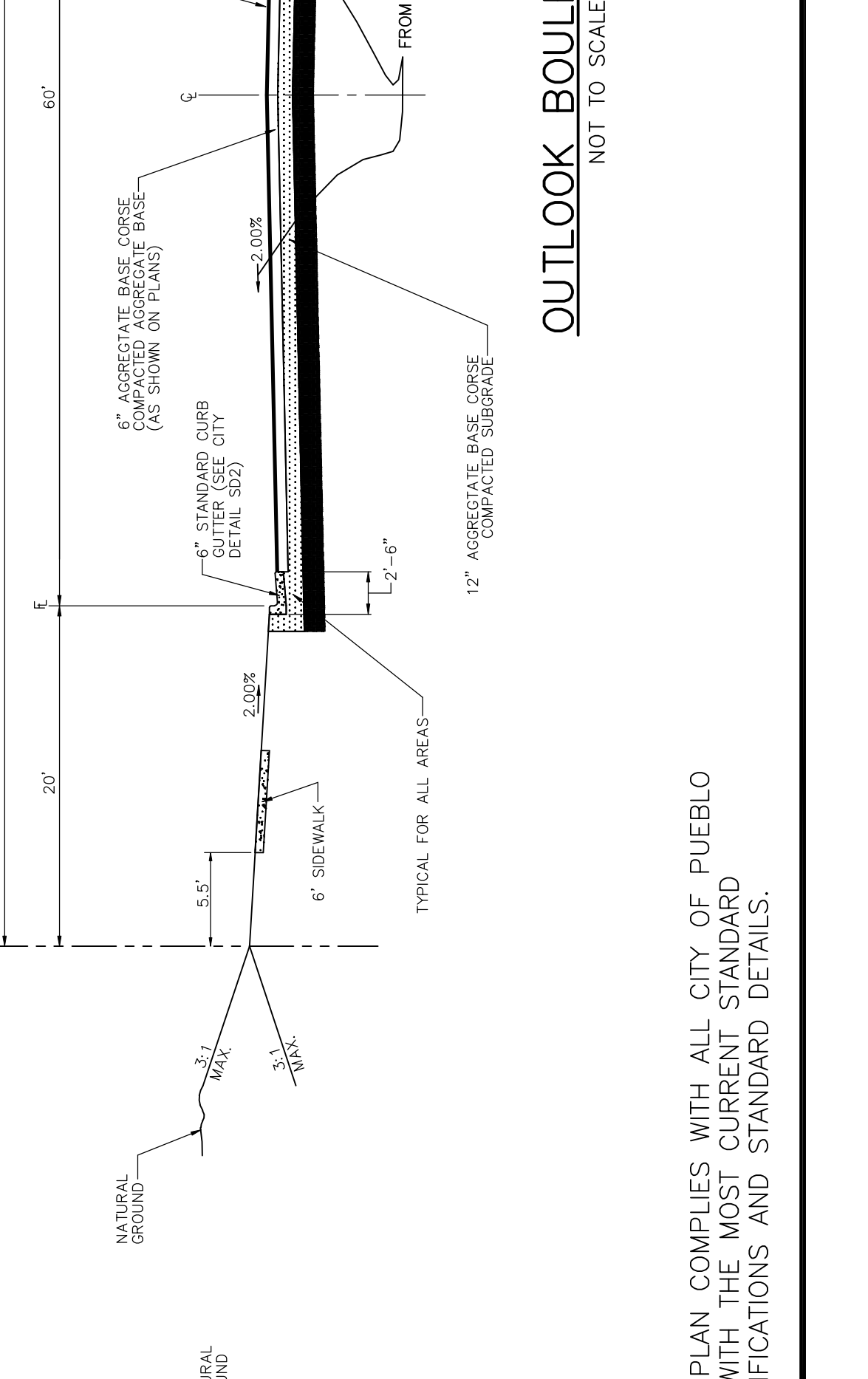
DATE: 11-03-16

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DRAWN BY: DJA

CHECKED BY: KKK

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| | | | | | |
|---|-----------|--------|-----------|-----------|--------|
| R | 250.00' | 22.33' | 04'14"11" | 50'59'42" | 30.34' |
| L | 04'14"11" | 60'74" | 23.43' | 18.48' | |

① TEMPORARY AC CURB RETURN
 RIP RAPP EROSION CONTROL AROUND INLET AND OUTLET
 OF CONCRETE PAN. PLACE RIP RAP 5 FT AROUND AS SHOWN TO DESILT STORM WATER.
 GRADE TO DRAIN TO EXISTING SOIL TYP.

② SEE RIP RAP NOTE ABOVE
 CITY OF PUEBLO SD2

③ END CONSTRUCTION
 6" STANDARD C. & G.
 STA. 76+03.43
 INV. ELEV. IN (N)=4922.39
 INV. ELEV. OUT (S)=4922.37

④ PROTECT EXISTING INLET IN PLACE
 ⑤ PROTECT CONSTRUCTED INLET IN PLACE

⑥ END CONSTRUCTION
 6" STANDARD C. & G.
 STA. 75+29.52
 INV. ELEV. IN (N)=4925.63
 INV. ELEV. OUT (S)=4925.21

⑦ END CONSTRUCTION
 6" STANDARD C. & G.
 STA. 74+20.57
 EC = 30.31 RT.
 STA. 74+20.57
 EC = 41.32 RT. BC = 32.89

⑧ END CONSTRUCTION
 6" STANDARD C. & G.
 STA. 73+82.23
 RT. = 64.49
 STA. 73+82.23
 EC = 32.22
 STA. 73+82.23
 EC = 41.32 RT. BC = 32.89

⑨ END CONSTRUCTION
 6" STANDARD C. & G.
 STA. 71+28.41
 INV. ELEV. IN (N)=4920.53
 INV. ELEV. OUT (S)=4920.49

⑩ END CONSTRUCTION
 6" STANDARD C. & G.
 STA. 69+85.99
 RT. = 32.30
 STA. 69+85.99
 EC = 30.31 RT.
 STA. 69+85.99
 EC = 41.32 RT. BC = 32.89

⑪ END CONSTRUCTION
 6" STANDARD C. & G.
 STA. 68+95.00
 RT. = 60.00
 STA. 68+95.00
 EC = 30.31 RT.
 STA. 68+95.00
 EC = 41.32 RT. BC = 32.89

⑫ END CONSTRUCTION
 6" STANDARD C. & G.
 STA. 67+21.74
 INV. ELEV. IN (N)=4917.82
 INV. ELEV. OUT (S)=4917.82

⑬ END CONSTRUCTION
 6" STANDARD C. & G.
 STA. 67+27.87
 INV. ELEV. IN (N)=4917.82
 INV. ELEV. OUT (S)=4917.82

⑭ END CONSTRUCTION
 6" STANDARD C. & G.
 STA. 67+38.84
 INV. ELEV. IN (N)=4917.82
 INV. ELEV. OUT (S)=4917.82

⑮ END CONSTRUCTION
 6" STANDARD C. & G.
 STA. 67+38.84
 INV. ELEV. IN (N)=4917.82
 INV. ELEV. OUT (S)=4917.82

⑯ END CONSTRUCTION
 6" STANDARD C. & G.
 STA. 67+38.84
 INV. ELEV. IN (N)=4917.82
 INV. ELEV. OUT (S)=4917.82

⑰ END CONSTRUCTION
 6" STANDARD C. & G.
 STA. 67+38.84
 INV. ELEV. IN (N)=4917.82
 INV. ELEV. OUT (S)=4917.82

⑱ END CONSTRUCTION
 6" STANDARD C. & G.
 STA. 67+38.84
 INV. ELEV. IN (N)=4917.82
 INV. ELEV. OUT (S)=4917.82

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 INV. ELEV. IN (N)=4917.82
 INV. ELEV. OUT (S)=4917.82

⑳ END CONSTRUCTION
 6" STANDARD C. & G.
 STA. 67+38.84
 INV. ELEV. IN (N)=4917.82
 INV. ELEV. OUT (S)=4917.82

㉑ END CONSTRUCTION
 6" STANDARD C. & G.
 STA. 67+38.84
 INV. ELEV. IN (N)=4917.82
 INV. ELEV. OUT (S)=4917.82

㉒ END CONSTRUCTION
 6" STANDARD C. & G.
 STA. 67+38.84
 INV. ELEV. IN (N)=4917.82
 INV. ELEV. OUT (S)=4917.82

㉓ END CONSTRUCTION
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 STA. 67+38.84
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 INV. ELEV. OUT (S)=4917.82

㉔ END CONSTRUCTION
 6" STANDARD C. & G.
 STA. 67+38.84
 INV. ELEV. IN (N)=4917.82
 INV. ELEV. OUT (S)=4917.82

㉕ END CONSTRUCTION
 6" STANDARD C. & G.
 STA. 67+38.84
 INV. ELEV. IN (N)=4917.82
 INV. ELEV. OUT (S)=4917.82

㉖ END CONSTRUCTION
 6" STANDARD C. & G.
 STA. 67+38.84
 INV. ELEV. IN (N)=4917.82
 INV. ELEV. OUT (S)=4917.82

㉗ END CONSTRUCTION
 6" STANDARD C. & G.
 STA. 67+38.84
 INV. ELEV. IN (N)=4917.82
 INV. ELEV. OUT (S)=4917.82

㉘ END CONSTRUCTION
 6" STANDARD C. & G.
 STA. 67+38.84
 INV. ELEV. IN (N)=4917.82
 INV. ELEV. OUT (S)=4917.82

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 6" STANDARD C. & G.
 STA. 67+38.84
 INV. ELEV. IN (N)=4917.82
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 INV. ELEV. IN (N)=4917.82
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 INV. ELEV. IN (N)=4917.82
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 INV. ELEV. IN (N)=4917.82
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 6" STANDARD C. & G.
 STA. 67+38.84
 INV. ELEV. IN (N)=4917.82
 INV. ELEV. OUT (S)=4917.82

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 STA. 67+38.84
 INV. ELEV. IN (N)=4917.82
 INV. ELEV. OUT (S)=4917.82

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 6" STANDARD C. & G.
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 6" STANDARD C. & G.
 STA. 67+38.84
 INV. ELEV. IN (N)=4917.82
 INV. ELEV. OUT (S)=4917.82

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 6" STANDARD C. & G.
 STA. 67+38.84
 INV. ELEV. IN (N)=4917.82
 INV. ELEV. OUT (S)=4917.82

㊳ END CONSTRUCTION
 6" STANDARD C. & G.
 STA. 67+38.84
 INV. ELEV. IN (N)=4917.82
 INV. ELEV. OUT (S)=4917.82

㊴ END CONSTRUCTION
 6" STANDARD C. & G.
 STA. 67+38.84
 INV. ELEV. IN (N)=4917.82
 INV. ELEV. OUT (S)=4917.82

NOTE: STREET CROWN SLOPE @ 2.00%

REVISIONS:

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REVIEWED FOR GENERAL COMPLIANCE WITH CITY OF PUEBLO STANDARDS
 GENERAL DATE: _____
 SANITARY SEWER DATE: _____
 TRANSPORTATION DATE: _____
 DATE: _____

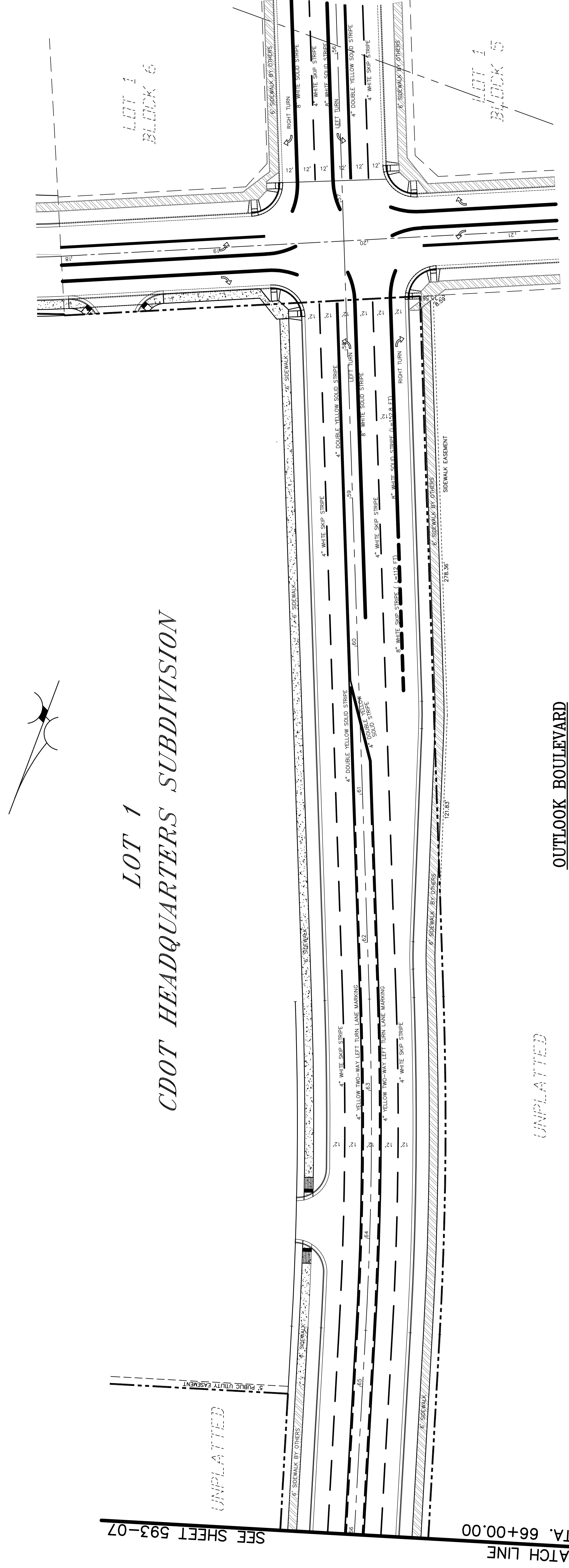
REVIEWED FOR GENERAL COMPLIANCE WITH BOARD OF WATER WORKS STANDARDS
 BY: _____
 DATE: _____

PROJECT NAME: CDOT HEADQUARTERS SUBDIVISION
 SHEET TITLE: OUTLOOK BOULEVARD STRIPING PLAN



PREPARED UNDER THE DIRECT SUPERVISION OF KIM KLAYTON KOCK, P.E., LICENSED PROFESSIONAL ENGINEER, REGISTRATION NO. 19759.

HOR. SCALE: 1"=40'
 VERT. SCALE: 1"=4'
 DATE: 11-03-16
 DESIGN BY: MLC
 DRAWN BY: DJA
 CHECKED BY: KK
 FILE: 593-05.DWG
 JOB NO. 1502801
593
 SHEET 5 OF 11



BENCHMARK:
 CDOT HEADQUARTERS SUBDIVISION
 National Geodetic Survey Point No. U 348
 PID - JK0066
 NAVD 88 Elevation = 4816.92

LEGEND:

 BUILT BY CITY OF PUEBLO

 BUILT BY OTHERS

- SHEET NOTES:
- (1) ALL SIGN AND STRIPING WORK TO BE PERFORMED PER CITY OF PUEBLO DEPARTMENT OF TRANSPORTATION SPECIFICATIONS.
 - (2) ALL TRAFFIC CONTROL SIGNS SHALL BE PER "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".
 - (3) ALL PAVEMENT MARKING ARROWS SHALL BE "FHWA NARROW" DESIGN.
 - (4) ALL PAVEMENT MARKING SYMBOLS SHALL BE PERFORMED THERMO PLASTIC.
 - (5) PAVEMENT MARKING MATERIAL ON OUTLOOK BOULEVARD SHALL BE 3M IN-LAY TAPE SERIES 3990 STARMARK.

BENCHMARK:
 EAGLERIDGE ESTATES, FILING NO. 2 (E.R.E.)
 "U" CHISLED ON THE TOP OF CURB HEAD ON THE SOUTHWEST CURB RETURN OF THE SOUTHEAST CORNER OF THE INTERSECTION OF EAGLERIDGE BOULEVARD AND RIDGE DRIVE.
 ELEVATION: 4812.84 (CITY OF PUEBLO DATUM)

NOTE:
 THE DESIGN OF THIS SHEET IS INCOMPLETE UNLESS ACCOMPANIED BY THE "TITLE SHEET".

| REVISED BY | DATE | REVISION | DATE | MARK | REVIEWED BY | DATE |
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REVIEWED FOR GENERAL COMPLIANCE WITH CITY OF PUEBLO STANDARDS
 GENERAL DATE: _____
 SANITARY SEWER DATE: _____
 TRANSPORTATION DATE: _____
 DATE: _____

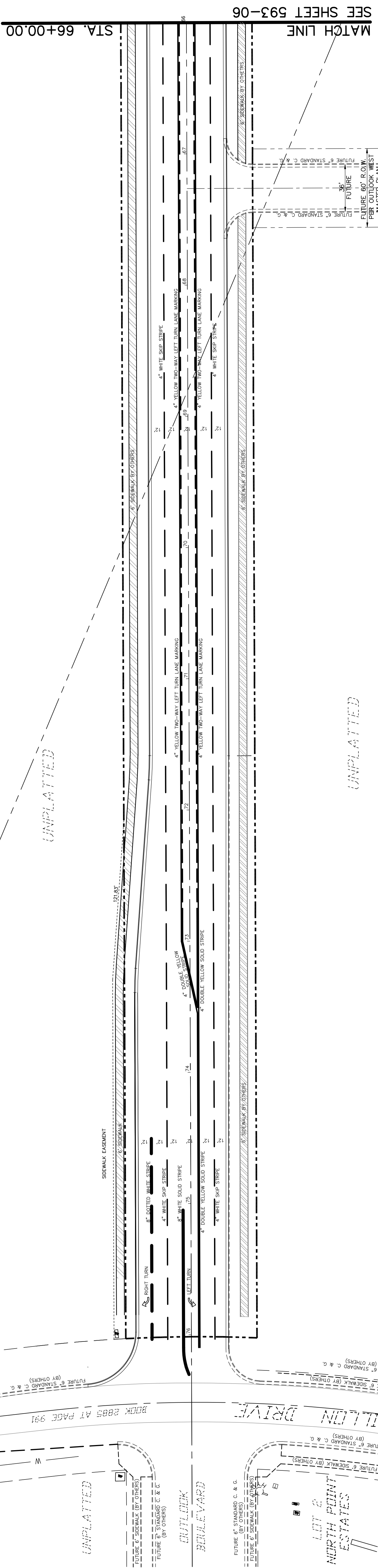
REVIEWED FOR GENERAL COMPLIANCE WITH BOARD OF WATER WORKS STANDARDS
 BY: _____
 DATE: _____

PROJECT NAME: CDOT HEADQUARTERS SUBDIVISION
 SHEET TITLE: OUTLOOK BOULEVARD STRIPING PLAN



PREPARED UNDER THE DIRECT SUPERVISION OF KIM KLAYTON KOCK, P.E., LICENSED PROFESSIONAL ENGINEER, REGISTRATION NO. 19759.

HOR. SCALE: 1"=40'
 VERT. SCALE: 1"=4'
 DATE: 11-03-16
 DESIGN BY: MLC
 DRAWN BY: DJA
 CHECKED BY: KK
 FILE: 593-06.DWG
 JOB NO. 1502801
593
 SHEET 6 OF 11



OUTLOOK BOULEVARD
 PHASE 1 CONSTRUCTION

LEGEND:
 BUILT BY CITY OF PUEBLO
 BUILT BY OTHERS

BENCHMARK:
 CDOT HEADQUARTERS SUBDIVISION
 National Geodetic Survey Point No. U 348
 PID - JK0066
 NAVD 88 Elevation = 4816.92

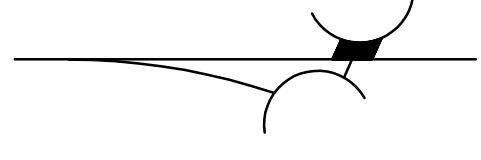
BENCHMARK:
 EAGLERIDGE ESTATES, FILING NO. 2
 "U" CHISLED ON THE TOP OF CURB HEAD ON THE SOUTHWEST CURB RETURN OF THE SOUTHEAST CORNER OF THE INTERSECTION OF EAGLERIDGE BOULEVARD AND RIDGE DRIVE.
 ELEVATION: 4812.84 (CITY OF PUEBLO DATUM)

- SHEET NOTES:
- (1) ALL SIGN AND STRIPING WORK TO BE PERFORMED PER CITY OF PUEBLO DEPARTMENT OF TRANSPORTATION SPECIFICATIONS.
 - (2) ALL TRAFFIC CONTROL SIGNS SHALL BE PER "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".
 - (3) ALL PAVEMENT MARKING ARROWS SHALL BE "FHWA NARROW" DESIGN.
 - (4) ALL PAVEMENT MARKING SYMBOLS SHALL BE PREFORMED THERMO PLASTIC.
 - (5) PAVEMENT MARKING MATERIAL ON OUTLOOK BOULEVARD SHALL BE 3M IN-LAY TAPE SERIES 3990 STARMARK.

NOTE:
 THE DESIGN OF THIS SHEET IS INCOMPLETE UNLESS ACCOMPANIED BY THE "TITLE SHEET".

MATCH LINE
 SEE SHEET 593-06
 STA. 66+00.00

| REVISED BY | REVISION | DATE | MARK | REVIEWED BY | DATE |
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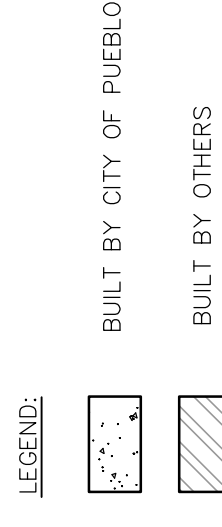
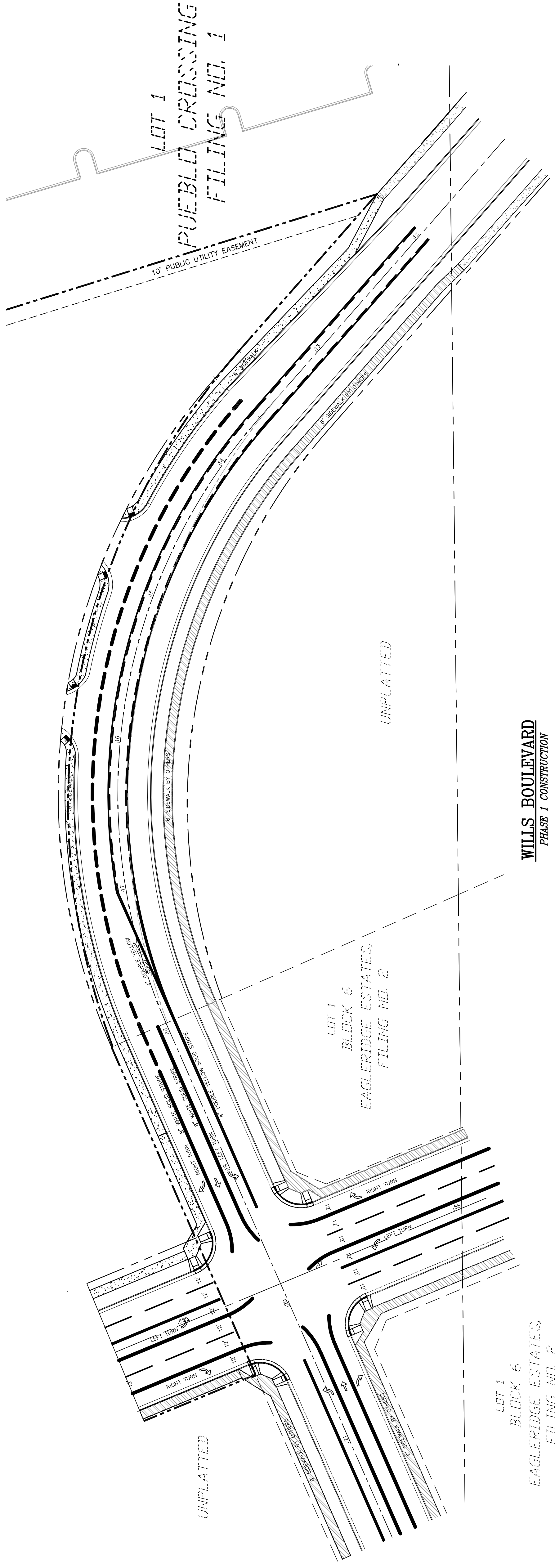
LOT 1
CDOT HEADQUARTERS SUBDIVISION

PROJECT NAME: CDOT HEADQUARTERS SUBDIVISION
SHEET TITLE: OUTLOOK BOULEVARD STRIPING PLAN



PREPARED UNDER THE DIRECT SUPERVISION OF KIM KLAYTON KOCK, P.E., LICENSED PROFESSIONAL ENGINEER, REGISTRATION NO. 19799.

HOR. SCALE: 1"=40'
VERT. SCALE: 1"=4'
DATE: 11-03-16
DESIGN BY: MLC
DRAWN BY: DJA
CHECKED BY: KK
FILE: 593-07.DWG
JOB NO. 1502801
593
SHEET 7 OF 11



BENCHMARK:
CDOT HEADQUARTERS SUBDIVISION
National Geodetic Survey Point No. U 348
PID - JK0066
NAVD 88 Elevation = 4816.92

BENCHMARK:
EAGLERIDGE ESTATES, FILING NO. 2 (E.R.E.)
"U" CHISLED ON THE TOP OF CURB HEAD ON THE SOUTHWEST CURB RETURN OF THE SOUTHEAST CORNER OF THE INTERSECTION OF EAGLERIDGE BOULEVARD AND RIDGE DRIVE.
ELEVATION: 4812.84 (CITY OF PUEBLO DATUM)

SHEET NOTES:

- (1) ALL SIGN AND STRIPING WORK TO BE PERFORMED PER CITY OF PUEBLO DEPARTMENT OF TRANSPORTATION SPECIFICATIONS.
- (2) ALL TRAFFIC CONTROL SIGNS SHALL BE PER "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".
- (3) ALL PAVEMENT MARKING ARROWS SHALL BE "FHWA NARROW" DESIGN.
- (4) ALL PAVEMENT MARKING SYMBOLS SHALL BE PERFORMED THERMO PLASTIC.
- (5) PAVEMENT MARKING MATERIAL ON OUTLOOK AND WILLS BOULEVARD SHALL BE 3M IN-LAY TAPE SERIES 3990 STARMARK.

NOTE:
THE DESIGN OF THIS SHEET IS INCOMPLETE UNLESS ACCOMPANIED BY THE "TITLE SHEET".

REVIEWED FOR GENERAL COMPLIANCE WITH CITY OF PUEBLO STANDARDS
REVIEWED FOR GENERAL COMPLIANCE WITH CITY OF PUEBLO STANDARDS
GENERAL: DATE: _____
SANITARY SEWER: DATE: _____
DRAINAGE: DATE: _____
TRANSPORTATION: DATE: _____
DATE: _____
BY: _____
DATE: _____
REVIEWED FOR GENERAL COMPLIANCE WITH BOARD OF WATER WORKS STANDARDS

| REVISED BY | REVISION | DATE | MARK | REVIEWED BY | DATE |
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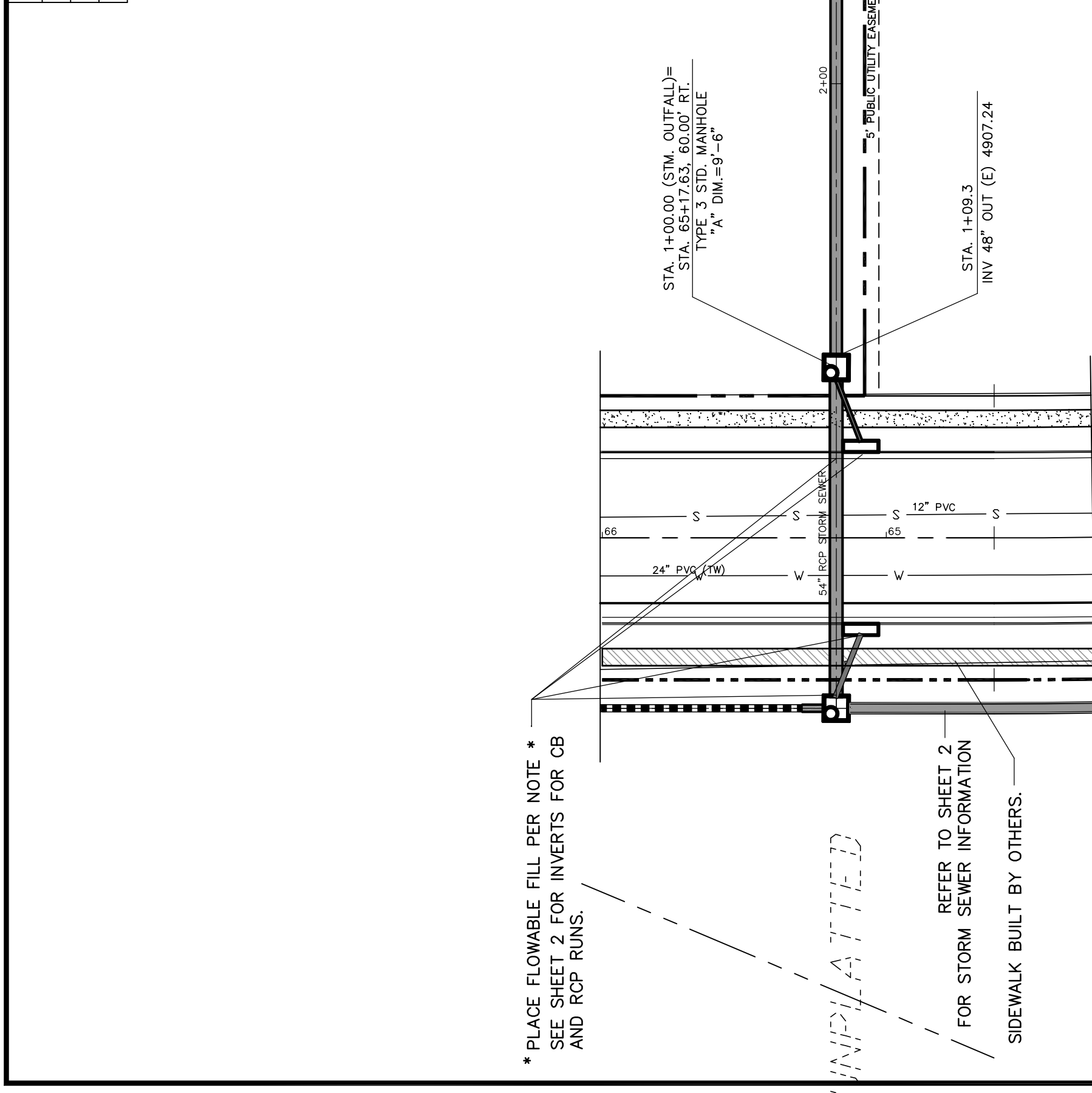
NOTE: THE DESIGN OF THIS SHEET IS INCOMPLETE UNLESS ACCOMPANIED BY THE TITLE SHEET.
 PAYMENT DESIGN AS N/A CITY ENGINEERS OFFICE
 N/A CUBS AND OUTLET EXCEPT AS NOTED.
 N/A SEWALK.
 GENERAL NOTE:
 SEE TITLE SHEET AND WATER BOARD SHEET FOR GENERAL NOTES.
 ALL NEW CONSTRUCTION TO COMPLY WITH THE CITY OF PUEBLO STANDARD SPECIFICATIONS AND STANDARD DETAILS (CONV. 508.3) FOR HANDICAP RAMP DETAILS.
 ALL NEW CONSTRUCTION TO COMPLY WITH THE CITY OF PUEBLO STANDARD SPECIFICATIONS AND STANDARD DETAILS (CONV. 508.3) FOR HANDICAP RAMP DETAILS.
 THE CONSTRUCTION PLAN COMPLETES WITH ALL CITY OF PUEBLO DESIGN STANDARDS WITH THE MOST CURRENT STANDARD CONSTRUCTION SPECIFICATIONS AND STANDARD DETAILS.
 BENCHMARK: CDOT HEADQUARTERS SUBDIVISION
 SURVEY POINT: Survey Point No. U 348
 PID = 40006
 NAD 83 Elevation = 4816.92
 BENCHMARK: EVIDENCE ESTATES, PLUMBING NO. 2
 SURVEY POINT: Survey Point No. U 348
 PID = 40006
 NAD 83 Elevation = 4816.92
 * CONTRACTOR SHALL PLACE FLOWABLE FILL UNDERNEATH ALL AREAS WHERE STORM SEWER LATERALS CROSS HANDICAP RAMPS, CURBS AND SIDEWALKS. REFER TO PROJECT SPECIFICATIONS FOR MORE DETAILS.

DATE: _____
 BY: _____
 REVIEWED FOR GENERAL COMPLIANCE WITH BOARD OF WATER WORKS STANDARDS

DATE: _____
 BY: _____
 REVIEWED FOR GENERAL COMPLIANCE WITH CITY OF PUEBLO STANDARDS

GENERAL: _____
 SANITARY SEWER: _____
 DRAINAGE: _____
 TRANSPORTATION: _____
 DATE: _____
 DATE: _____

PROJECT NAME: CDOT HEADQUARTERS SUBDIVISION
 SHEET TITLE: OUTLOOK BOULEVARD STORM SEWER OUTFALL (STA. 1+00.00 TO STA. 9+18.85)



* PLACE FLOWABLE FILL PER NOTE * SEE SHEET 2 FOR INVERTS FOR CB AND RCP RUNS.

REFER TO SHEET 2 FOR STORM SEWER INFORMATION

SIDEWALK BUILT BY OTHERS.

NOTE TO CONTRACTOR:
 CONTRACTOR TO POTHOLE AND FIELD VERIFY ALL UTILITIES.
 PROTECT UTILITY IN PLACE. ALL DEPTH SHOWN ARE APPROXIMATE PER UTILITY COMPANY STANDARDS.

LEGEND:

- SIDEWALK BUILT BY CITY OF PUEBLO
- SIDEWALK BUILT BY OTHERS
- STORM SEWER BUILT BY OTHERS
- STORM SEWER BUILT BY CITY OF PUEBLO

REVIEWED UNDER THE DIRECT SUPERVISION OF
 KIM KLAYTON KOCK, P.E.,
 ENGINEERING AND SURVEYING
 1111 E. 17th Ave., Suite 100
 Denver, CO 80202
 PHONE: (303) 733-8888
 FAX: (303) 733-8888
 NO. 10000 REGISTRATION

PREPARED UNDER THE DIRECT SUPERVISION OF
 KIM KLAYTON KOCK, P.E.,
 ENGINEERING AND SURVEYING
 1111 E. 17th Ave., Suite 100
 Denver, CO 80202
 PHONE: (303) 733-8888
 FAX: (303) 733-8888
 NO. 10000 REGISTRATION

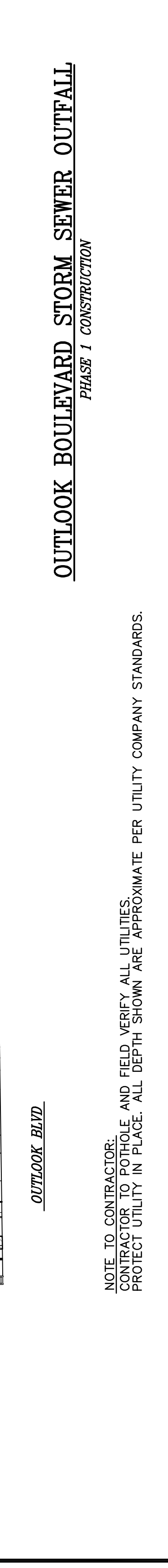
HOR. SCALE: 1" = 40'
 VERT. SCALE: 1" = 4'

DATE: 11-03-16
 DESIGN BY: SMC
 DRAWN BY: SMC
 CHECKED BY: KIK
 FILE: 533-08.DWG

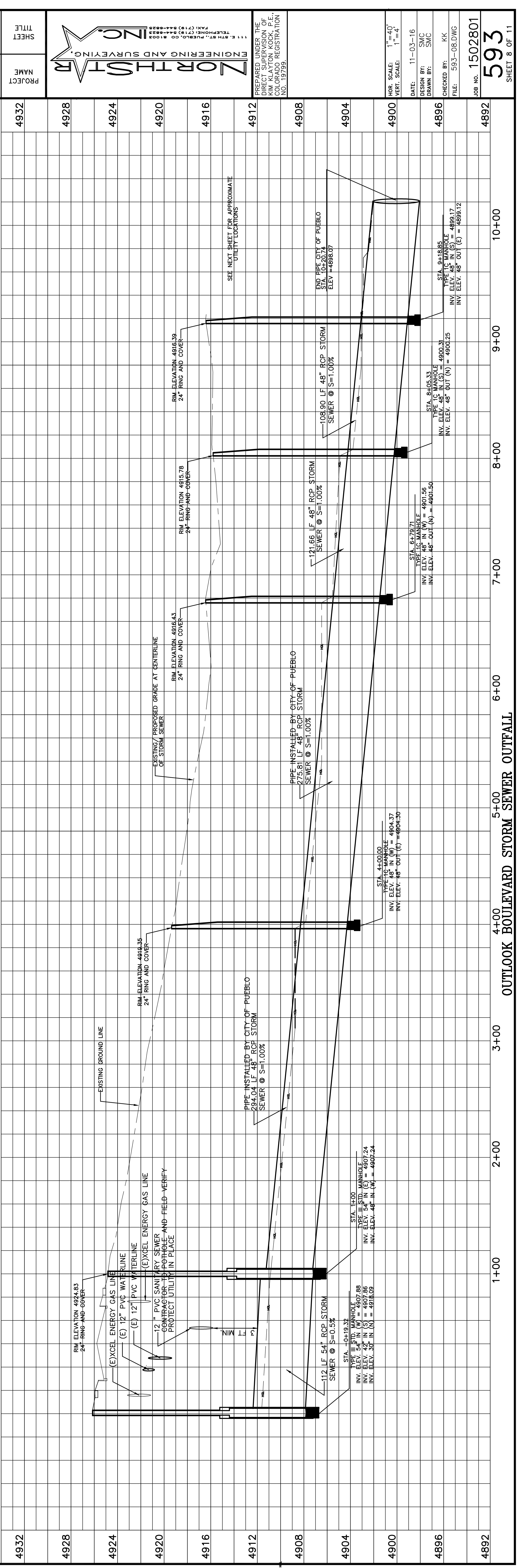
JOB NO. 1502801
 593
 SHEET 8 OF 11



| STATION | DESCRIPTION | INVERT ELEVATION | OUTLET ELEVATION |
|---------|-----------------|------------------|------------------|
| 9+21.85 | TYPE 1C MANHOLE | 4899.17 | 4899.17 |
| 8+05.32 | TYPE 1C MANHOLE | 4900.31 | 4900.31 |
| 6+42.71 | TYPE 1C MANHOLE | 4901.56 | 4901.56 |
| 4+02.99 | TYPE 1C MANHOLE | 4904.30 | 4904.30 |
| 4+00.00 | TYPE 1C MANHOLE | 4907.24 | 4907.24 |
| 1+09.33 | TYPE 1C MANHOLE | 4907.24 | 4907.24 |
| 1+04.33 | TYPE 1C MANHOLE | 4907.24 | 4907.24 |
| 0+18.85 | TYPE 1C MANHOLE | 4907.24 | 4907.24 |



NOTE TO CONTRACTOR:
 CONTRACTOR TO POTHOLE AND FIELD VERIFY ALL UTILITIES.
 PROTECT UTILITY IN PLACE. ALL DEPTH SHOWN ARE APPROXIMATE PER UTILITY COMPANY STANDARDS.



| STATION | DESCRIPTION | INVERT ELEVATION | OUTLET ELEVATION |
|---------|-----------------|------------------|------------------|
| 9+21.85 | TYPE 1C MANHOLE | 4899.17 | 4899.17 |
| 8+05.32 | TYPE 1C MANHOLE | 4900.31 | 4900.31 |
| 6+42.71 | TYPE 1C MANHOLE | 4901.56 | 4901.56 |
| 4+02.99 | TYPE 1C MANHOLE | 4904.30 | 4904.30 |
| 4+00.00 | TYPE 1C MANHOLE | 4907.24 | 4907.24 |
| 1+09.33 | TYPE 1C MANHOLE | 4907.24 | 4907.24 |
| 1+04.33 | TYPE 1C MANHOLE | 4907.24 | 4907.24 |
| 0+18.85 | TYPE 1C MANHOLE | 4907.24 | 4907.24 |

DATE: _____
 BY: _____
 WATER WORKS STANDARDS
 COMPLIANCE WITH BOARD OF
 GENERAL ENGINEERS

DATE: _____
 TRANSPORTATION
 GENERAL ENGINEERS

DATE: _____
 SANITARY SEWER
 GENERAL ENGINEERS

REVIEWED FOR GENERAL COMPLIANCE WITH CITY OF PUEBLO STANDARDS

CDOT HEADQUARTERS SUBDIVISION

PROJECT NAME

SHEET TITLE

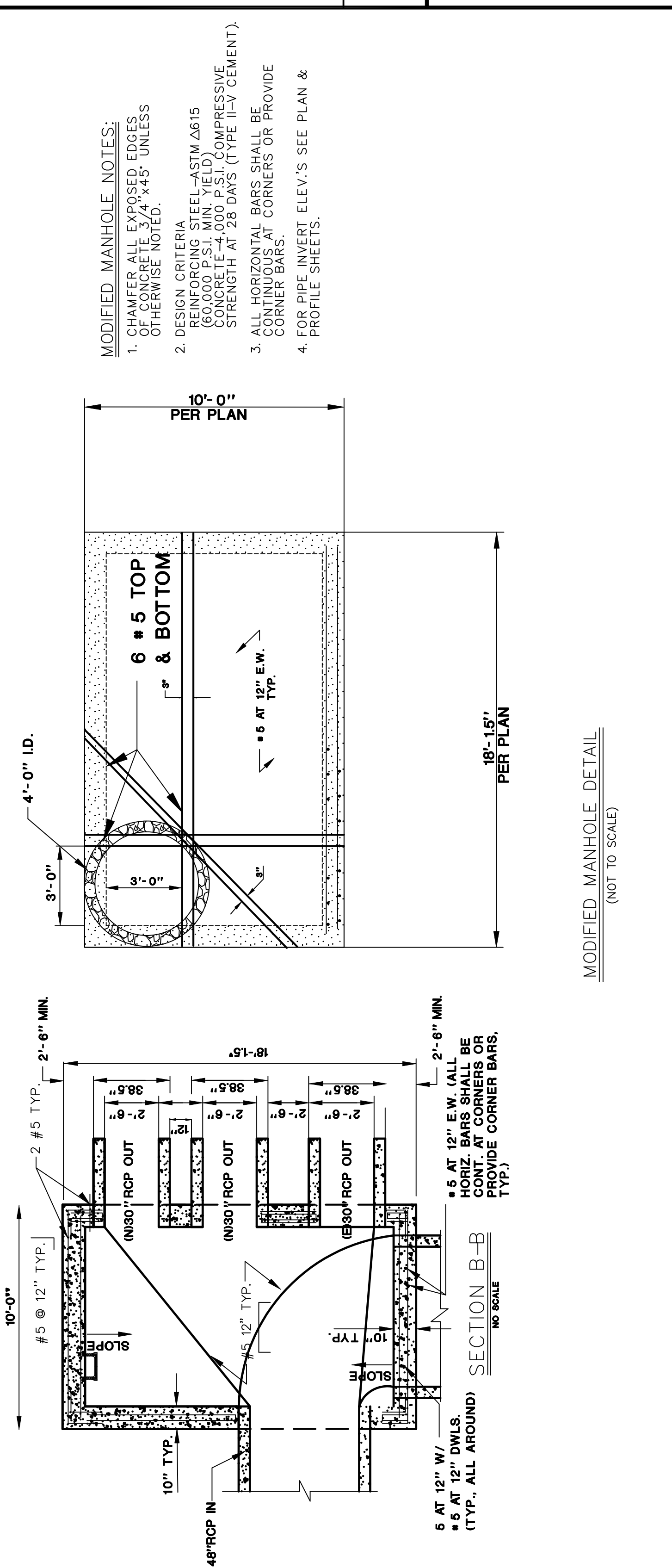
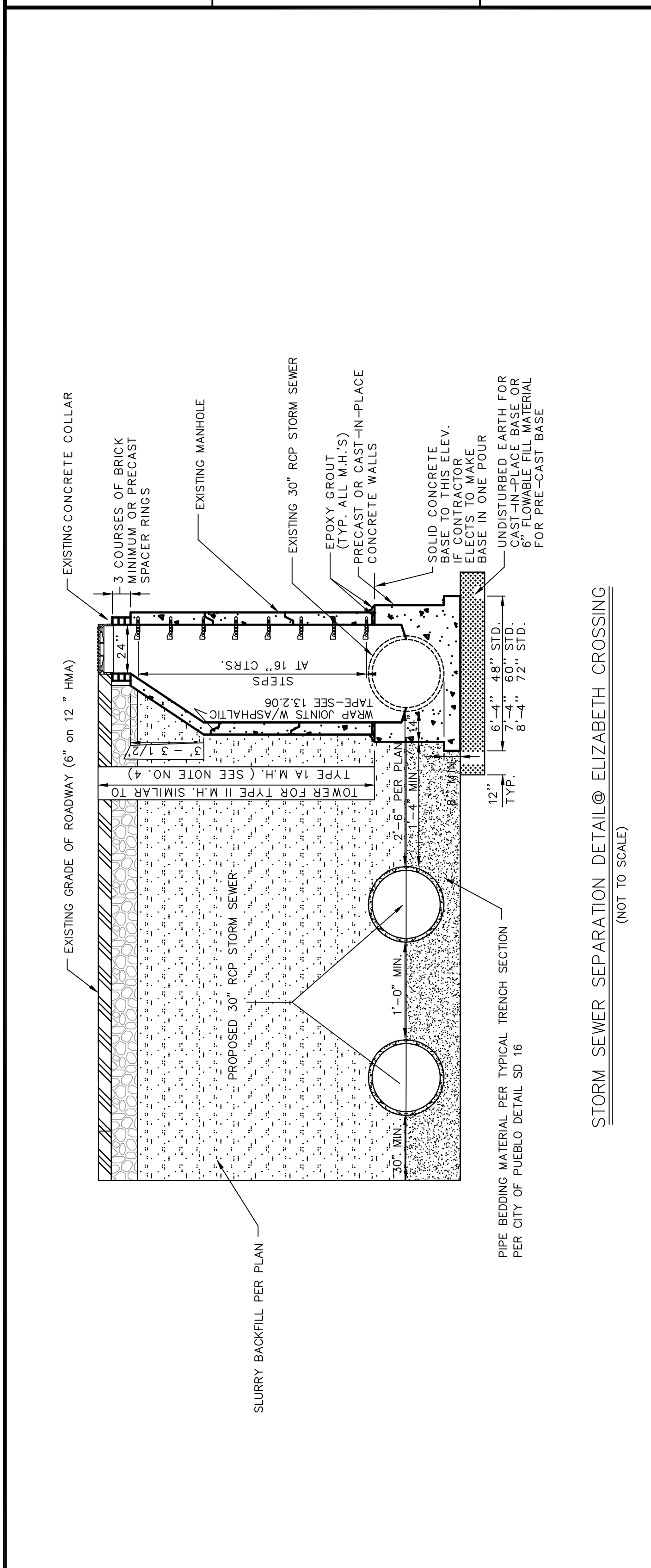


PREPARED UNDER THE DIRECT SUPERVISION OF KIM KLAYTON KOCK, P.E., LICENSE NO. 1019790

HOR. SCALE: 1"=40'
 VERT. SCALE: 1"=4'

DATE: 1-23-17
 DESIGN BY: SC
 DRAWN BY: SC
 CHECKED BY: MLC
 FILE: 593-10.DWG

JOB NO. 1502801
593
 SHEET 10 OF 11



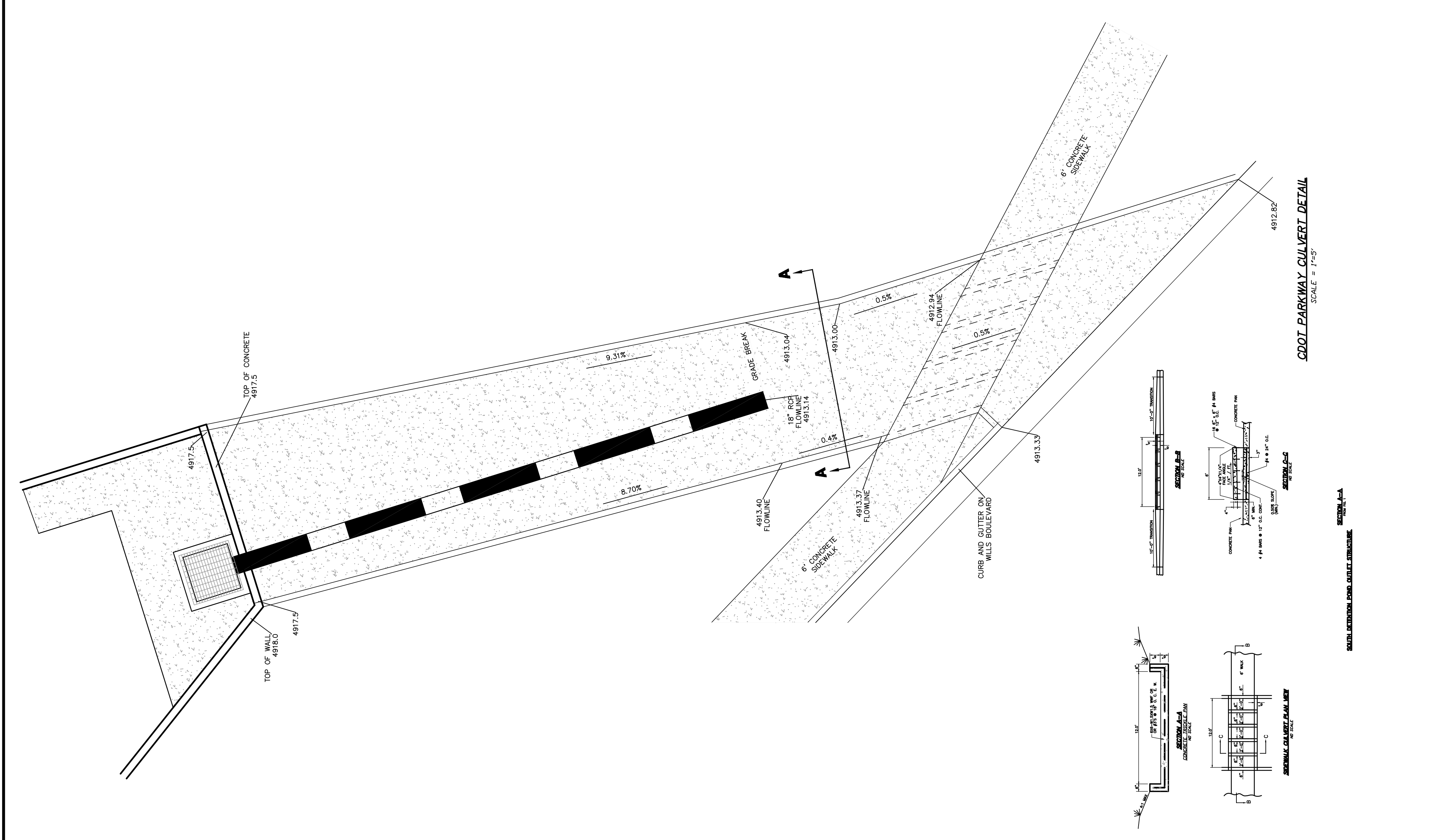
MODIFIED MANHOLE NOTES:

1. CHAMFER ALL EXPOSED EDGES OF CONCRETE 3/4" x 45° UNLESS OTHERWISE NOTED.
2. DESIGN CRITERIA
 REINFORCING STEEL—ASTM A615 (GRADE 60) MIN. YIELD COMPRESSIVE STRENGTH AT 28 DAYS (TYPE II-V CEMENT).
3. ALL HORIZONTAL BARS SHALL BE CONTINUOUS AT CORNERS OR PROVIDE CORNER BARS.
4. FOR PIPE INVERT ELEV.'S SEE PLAN & PROFILE SHEETS.

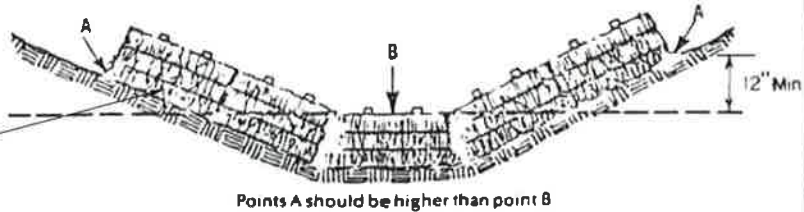
MODIFIED MANHOLE DETAIL
 (NOT TO SCALE)

GRADED AND EROSION CONTROL NOTES

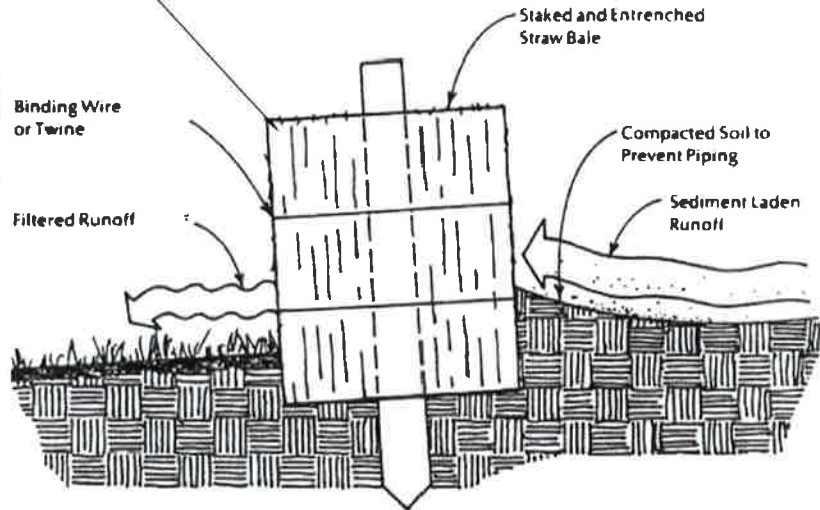
1. THIS GRADING PLAN IS ONE DOCUMENT OF MULTIPLE DESIGN DOCUMENTS FOR THIS PROJECT. THE GRADING PLAN IS NOT TO BE USED IN ISOLATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING THE REQUIREMENTS OF ALL PLANS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES AND NOTIFYING THE ENGINEER OF ANY DISCREPANCIES. FAILURE OF THE CONTRACTOR TO REVIEW THE PLANS PRIOR TO CONSTRUCTION SHALL BE SOLELY AT THE CONTRACTOR'S RISK AND EXPENSE.
2. THE GEOTECHNICAL REPORT FOR THIS PROJECT SHALL BE INCORPORATED.
3. HEREIN AS IF REPRODUCED IN FULL CONFLICTS BETWEEN THE GEOTECHNICAL REPORT AND OTHER PROJECT PLANS AND DOCUMENTS SHALL BE RESOLVED AS IN NOTE 1 ABOVE.
4. PROPOSED CONTOURS SHOWN ON THIS PLAN REPRESENT FINISHED GRADES AND ARE FOR CONCEPTUAL PURPOSES ONLY. INFORMATION DEPICTED BY SPOT ELEVATION, DETAIL, TYPICAL SECTION AND PROFILE SHALL GOVERN.
5. OVERLOT FLOW ARROWS ON THIS SHEET REPRESENT OVERLOT GRADING TO BE EMPLOYED AT TIME OF LOT CONSTRUCTION.
6. AVOID DISTURBANCE OF AREAS NOT TO BE GRADED.
7. FILLS SHALL BE PLACED AND COMPACTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND THE GEOTECHNICAL REPORT. WHERE CONFLICTS OCCUR THE MOST STRINGENT REQUIREMENT SHALL APPLY, UNLESS DIRECTED OTHERWISE BY THE GEOTECHNICAL ENGINEER.
8. OVERLOT AREAS IN CUT SECTIONS SHALL BE OVERCUT BY 1" UPON COMPLETION OF GRADING, PLACE AND CONSOLIDATE STRIPPINGS TO BRING BACK TO FINISHED GRADE. CRUST SURFACES UNTIL UTILITY INSTALLATIONS ARE COMPLETE.
9. OVERLOT AREAS IN FILL SECTIONS SHALL BE LETT 3" LOW UPON COMPLETION OF GRADING, PLACE AND CONSOLIDATE STRIPPINGS TO BRING BACK TO FINISHED GRADE. CRUST SURFACES UNTIL UTILITY INSTALLATIONS ARE COMPLETE.
10. FINISH GRADE SHALL BE BROUGHT WITHIN A TOLERANCE OF 0.0' TO +0.1' OF PLAN GRADE.
11. GRADED SURFACES SHALL BE LEFT IN A SMOOTH, UNIFORM, CRUSTED CONDITION FREE OF RUTS, DEPRESSIONS, IRREGULARITIES, LOOSE UNCOMPACTED SOIL, ETC.
12. REVEGETATE ALL DISTURBED AREAS THAT ARE NOT TO BE DEVELOPED IMMEDIATELY. OBTAIN RECOMMENDATIONS FOR SEEDING, PLANTING TIMES, PLANTING TECHNIQUES, MULCHING, WATERING, ETC., FROM THE USDA SOIL CONSERVATION SERVICE.
13. LOCATION AND DEPTHS OF ANY EXISTING UTILITIES THAT MAY EXIST ON SITE ARE NOT SHOWN, OR ARE SHOWN IN AN APPROXIMATE WAY ONLY AND MAY NOT INCLUDE ALL UTILITIES. THE CONTRACTOR SHALL DETERMINE THE LOCATION OF ANY EXISTING UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THEIR FAILURE TO HAVE EXISTING UTILITIES LOCATED.



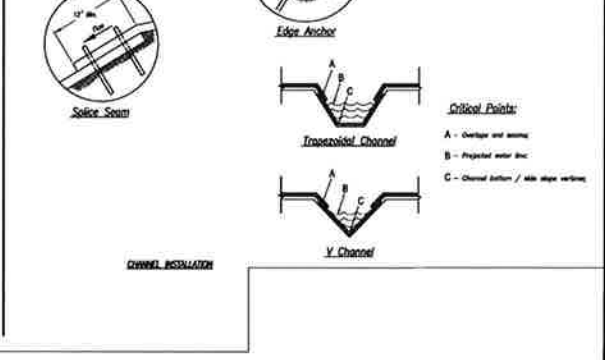
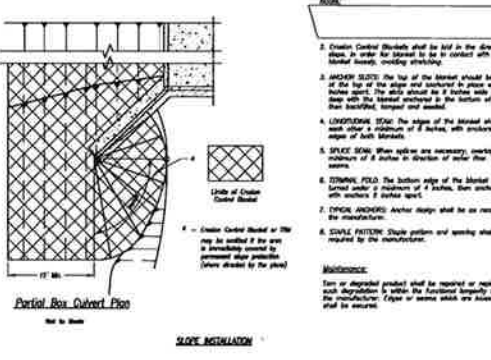
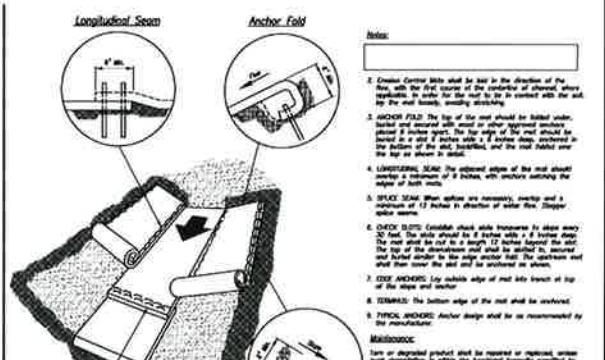
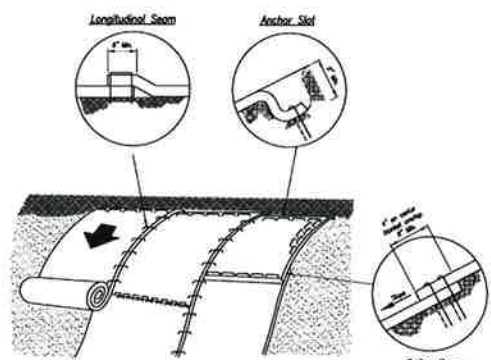
CHECK DAM SPACING PER PLAN AT CONTRACTOR OPTION FIBER ROLLS MAY BE SUBSTITUTED



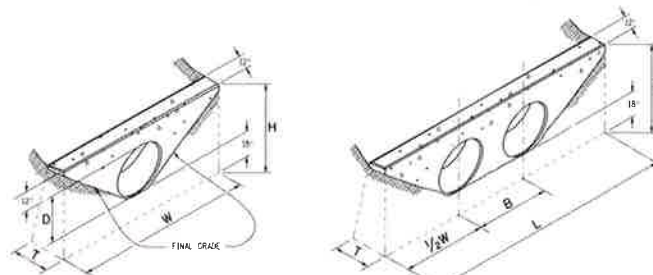
PROPER PLACEMENT OF STRAW BALE BARRIER IN DRAINAGE WAY



CHECK DAM DETAIL



SLOPE PROTECTION DETAIL



CONCRETE HEADWALL INSTALLATIONS
SEE STANDARD PLAN M-601-10 FOR REINFORCING DETAILS

| PIPE TYPE | MATERIAL | PIPE DIAMETER (AND EQUIVALENT DIAMETER) (IN.) | | | | | | | | | | |
|-----------|----------|---|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----|
| | | 18 | 24 | 30 | 36 | 42 | 48 | 54 | 60 | | | |
| CIRCULAR | FLEXIBLE | 1.0 | 1.3 | 1.5 | 2.0 | 2.7 | 2.8 | 3.6 | 4.6 | 4.6 | 6.0 | |
| | RIGID | 2.3 x 38 | 3.0 x 48 | 3.6 x 54 | 4.5 x 60 | 5.4 x 66 | 6.3 x 72 | 7.2 x 78 | 8.1 x 84 | 9.0 x 90 | 9.9 x 96 | |
| ELLIPSE | RIGID | 0.9 | 1.2 | 1.3 | 1.6 | 1.7 | 2.3 | 2.3 | 2.9 | 3.7 | 3.5 | 4.4 |
| | METAL | 22 x 13 | 29 x 18 | 36 x 22 | 43 x 27 | 50 x 31 | 57 x 35 | 64 x 39 | 71 x 43 | 78 x 47 | 85 x 51 | |
| ARCH | METAL | 0.9 | 1.3 | 1.4 | 1.9 | 1.8 | 2.4 | 2.4 | 3.4 | 3.7 | 4.4 | 5.0 |
| | PPRPP | 2.0 | 3.5 | 5.4 | 7.8 | 10.7 | 13.5 | 16.4 | 19.3 | 22.2 | 25.1 | |

CONCRETE QUANTITIES FOR ONE CONCRETE HEADWALL (CUBIC YARDS)

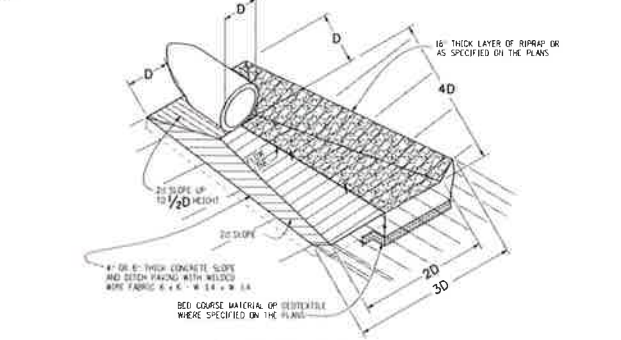
| THICKNESS | MATERIAL | PIPE DIAMETER ONLY | | | | | |
|-----------|----------|--------------------|-----|-----|-----|------|------|
| | | 18 | 24 | 30 | 36 | 42 | 48 |
| 4" | CONCRETE | 0.4 | 0.8 | 1.2 | 1.6 | 2.0 | 2.4 |
| 6" | CONCRETE | 0.6 | 1.2 | 1.8 | 2.4 | 3.0 | 3.6 |
| 8" | PPRPP | 2.0 | 3.5 | 5.4 | 7.8 | 10.7 | 13.5 |

NOTE: VOLUME OCCUPIED BY PIPE HAS BEEN DEDUCTED.

Computer File Information

| | |
|---|------------|
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| Last Modification Date: 07/04/12 | Issue: LTA |
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| File Name: 60120010.dwg | Issue: DD |
| File Path: \\colorado.ctd.state.tx.us\pub\designsupport\Drawings\Files\Name: 60120010.dwg | Issue: DD |

- GENERAL NOTES
1. PIPE SIZE AND LOCATION OF PIPES SEE THE PLANS.
 2. ALL CONCRETE SHALL BE CLASS B.
 3. FOOTINGS IN ROCK SHALL BE PERFORATED TO ROCK AND NOT FORMED IN ACCORDANCE WITH SUBSECTION ESD(9)(b).
 4. EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED 1/4" IN.
 5. HEADWALL SHALL HAVE REINFORCING STEEL INSTALLED IN A PATTERN SIMILAR TO STANDARD PLAN M-601-10.
 6. THE COST OF REINFORCING STEEL SHALL BE INCLUDED IN THE WORK ORDER. THE STEEL QUANTITIES ARE LISTED ON THE PLANS AND ARE PAID FOR SEPARATELY.



PIPE OUTLET PAVING (CUBIC YARDS)

NOTE: VOLUME OCCUPIED BY PIPE HAS BEEN DEDUCTED.

| THICKNESS | MATERIAL | PIPE DIAMETER ONLY | | | | | |
|-----------|----------|--------------------|-----|-----|-----|------|------|
| | | 18 | 24 | 30 | 36 | 42 | 48 |
| 4" | CONCRETE | 0.4 | 0.8 | 1.2 | 1.6 | 2.0 | 2.4 |
| 6" | CONCRETE | 0.6 | 1.2 | 1.8 | 2.4 | 3.0 | 3.6 |
| 8" | PPRPP | 2.0 | 3.5 | 5.4 | 7.8 | 10.7 | 13.5 |

Computer File Information

| | |
|---|------------|
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| Last Modification Date: 07/04/12 | Issue: LTA |
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| File Name: 60120010.dwg | Issue: DD |
| File Path: \\colorado.ctd.state.tx.us\pub\designsupport\Drawings\Files\Name: 60120010.dwg | Issue: DD |

Colorado Department of Transportation
4701 East Broadway Avenue
Denver, Colorado 80222
Phone: (303) 757-9083
Fax: (303) 757-9820

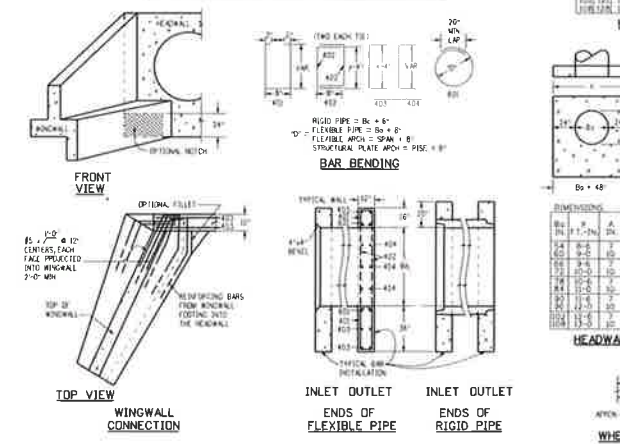
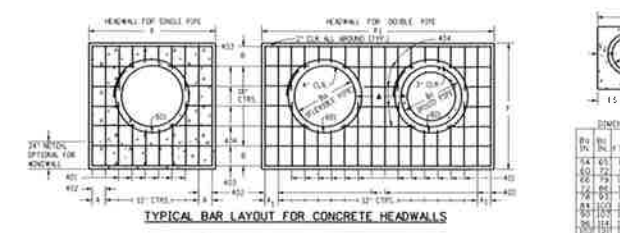
Project Development Branch DD/LTA

HEADWALLS AND PIPE OUTLET PAVING

STANDARD PLAN NO. M-601-12

Issue By: Project Development Branch July 4, 2012

Sheet No. 1 of 1



- GENERAL NOTES
1. CONCRETE SHALL BE CLASS B.
 2. HEADWALL SHALL BE PERPENDICULAR TO THE PIPE UNLESS OTHERWISE SHOWN ON THE PLANS. TABULATED QUANTITIES AND DIMENSIONS MUST BE ADJUSTED FOR SKEWED INSTALLATIONS.
 3. FOR MINORAL DETAILS, SEE STANDARD PLAN M-601-10.
 4. VOLUME OCCUPIED BY PIPE HAS BEEN DEDUCTED FROM STEEL AND CONCRETE QUANTITIES.
 5. EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED 1/4" IN.
 6. ALL REINFORCING BARS SHALL HAVE A 2 IN. MINIMUM CLEARENCE.
 7. WHEN 180 OR MORE PIPES ARE Laid SIDE BY SIDE, THEY SHALL BE PLACED SO THAT THE MINIMUM PIPES ARE 1/2 IN. FROM DIAMETER APART, OR 1/4 IN. FROM SPAN APART, OR 3 FT. APART (INCLUDING WALL THICKNESS), WHICHEVER IS LESS.
 8. 400 G.S.P. #5 OR #4 BARS WHEN APPLICABLE IS REQUIRED.

QUANTITIES

| DIMENSIONS | CONCRETE | | | | | | STEEL | | | | | |
|------------|----------|-----|-----|-----|-----|-----|-------|-----|-----|-----|-----|-----|
| | 18 | 24 | 30 | 36 | 42 | 48 | 18 | 24 | 30 | 36 | 42 | 48 |
| 18" x 18" | 0.4 | 0.8 | 1.2 | 1.6 | 2.0 | 2.4 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 |
| 24" x 24" | 0.6 | 1.2 | 1.8 | 2.4 | 3.0 | 3.6 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 |
| 30" x 30" | 0.8 | 1.6 | 2.4 | 3.2 | 4.0 | 4.8 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 |
| 36" x 36" | 1.0 | 2.0 | 3.0 | 4.0 | 5.0 | 6.0 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 |
| 42" x 42" | 1.2 | 2.4 | 3.6 | 4.8 | 6.0 | 7.2 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 |
| 48" x 48" | 1.4 | 2.8 | 4.2 | 5.6 | 7.0 | 8.4 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 |

Computer File Information

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| Last Modification Date: 07/04/12 | Issue: LTA |
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| File Name: 60120010.dwg | Issue: DD |
| File Path: \\colorado.ctd.state.tx.us\pub\designsupport\Drawings\Files\Name: 60120010.dwg | Issue: DD |

Colorado Department of Transportation
4701 East Broadway Avenue
Denver, Colorado 80222
Phone: (303) 757-9083
Fax: (303) 757-9570

Project Development Branch DD/LTA

HEADWALL FOR PIPES

STANDARD PLAN NO. M-601-10

Issue By: Project Development Branch July 4, 2012

Sheet No. 1 of 1

REVIEWED FOR GENERAL COMPLIANCE WITH CITY OF PUEBLO STANDARDS

REVIEWED FOR GENERAL COMPLIANCE WITH BOARD OF WATER WORKS STANDARDS

GENERAL DATE: _____

SANITARY ENGINEER DATE: _____

DRAINAGE DATE: _____

TRANSPORTATION DATE: _____

BY: _____

DATE: _____

CDOT HEADQUARTERS SUBDIVISION

EFFLUENT DRAINAGE DETAILS

PROJECT NAME: _____

SHEET TITLE: _____

NORTHSTAR ENGINEERING AND SURVEYING, INC.

111 S. 9TH ST., SUITE 100, PUEBLO, CO 81001
PHONE: (719) 243-8888

PREPARED UNDER THE DIRECT SUPERVISION OF
KIM KLAYTON KOCK, P.E.,
COLORADO REGISTRATION NO. 18799.

CHECKED BY: MLC

DESIGN BY: SC

DRAWN BY: SC

FILE: 593-10.DWG

JOB NO. 1502801

593

SHEET 11 OF 11



February 13, 2017
Kleinfelder Project No. 20170699.001A/CSP17R54529

Mr. Earl Wilkinson
Director of Public Works
City of Pueblo
211 E. D St.
Pueblo, Colorado

**Subject: REVISED Geotechnical Evaluation Report
Proposed Wills Boulevard and Outlook Boulevard Extensions
South of Dillon Drive
Pueblo, Colorado**


Dear Mr. Wilkinson:

The attached revised report presents the results of our Geotechnical Evaluation performed for the proposed Wills Boulevard and Outlook Boulevard Extensions in Pueblo, Colorado. Our work consisted of a subsurface exploration, laboratory testing, engineering analyses, and preparation of this report. We have revised our minimum pavement section recommendation based on our discussions with the City of Pueblo (City).

We appreciate this opportunity to be of service to you, and look forward to future endeavors. If you have any questions regarding this report or need additional information or services, please contact our office at (719) 632-3593.

Respectfully submitted,

KLEINFELDER, INC.


JG T. McCall, EIT
Staff Geotechnical Engineer


J. Kevin White, PE
Principal Geotechnical Engineer

JTM/JKW/jkw

Enclosures



A Report Prepared for:

Mr. Earl Wilkinson
Director of Public Works
City of Pueblo
211 E. D St.
Pueblo, CO 81005

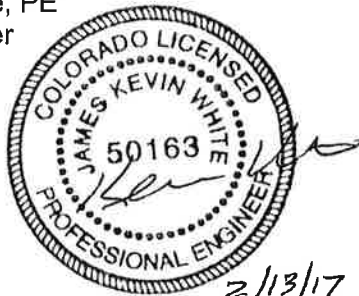
**REVISED GEOTECHNICAL EVALUATION REPORT
PROPOSED WILLS BOULEVARD AND
OUTLOOK BOULEVARD EXTENSIONS
PUEBLO, COLORADO**

Prepared by:

Younghoon Lee, PE
Project Engineer

JGT. McCall, EIT
Staff Geotechnical Engineer

Reviewed by:



J. Kevin White, PE
Principal Geotechnical Engineer

KLEINFELDER
4815 List Drive, Unit 115
Colorado Springs, CO 80919
Phone: 719.632.3593
Fax: 719.632.2648

February 13, 2017
Kleinfelder Project No: 20170699.001A

FIGURES

- 1 Site Vicinity Map
- 2 Exploration Location Plan

APPENDICES

- A Boring Logs
- B Geotechnical Laboratory Test Results
- C Analytical Laboratory Test Results
- D Pavement Section Thickness Calculations
- E Important Information About Your Geotechnical Engineering Report

Kleinfelder's scope of services consisted of the following:

- A visual reconnaissance to observe surface and geologic conditions at the project site and locate the exploratory borings;
- Notification of UNCC and the appropriate facility owners to locate underground utility lines at the boring locations prior to drilling;
- The drilling of eight borings along the project alignment;
- Laboratory testing of selected samples obtained during the field exploration to evaluate relevant physical and engineering properties of the soil;
- Evaluation and engineering analysis of the field and laboratory data collected to develop our geotechnical conclusions and recommendations; and

Preparation of this report, which includes a description of the proposed project, a description of the surface and subsurface site conditions found during our investigation, our conclusions and recommendations as to pavement section thickness design and other related geotechnical issues, and appendices which summarize our field and laboratory investigations.

2.2.2 Analytical Laboratory Testing

The following analytical laboratory testing was performed on a select on-site soil samples by an independent laboratory:

- Water Soluble Sulfates;
- pH;
- Soil Resistivity;
- Soluble Sulfates;
- Soluble Chlorides;
- Redox; and
- Sulfides

Results of the geotechnical and analytical laboratory tests are included in Appendix B and C, respectively. Selected test results are also shown on the boring logs, Appendix A.

The boring logs contained in Appendix A of this report should be reviewed for more detailed descriptions of the subsurface conditions at each of the boring locations explored.

3.4 SWELL POTENTIAL

We performed six laboratory swell tests on selected samples obtained from the borings to evaluate the expansive characteristics of the clay and weathered claystone. A summary of the test results is presented in the Table 1 below.

Table 1 – Swell Test Results Summary

| Boring No. | Depth, ft | USCS Group Symbol | PI | Surcharge Load, psf | Swell, % |
|------------|-----------|----------------------|----|------------------------|----------|
| P-1 | 4 | CL | 19 | 150 | 1.8 |
| P-2 | 9 | Pierre Shale (CH) | 25 | 500 | 1.1 |
| P-4 | 3 | CL | - | 200 | 2.1 |
| P-5 | 8 | Pierre Shale (CH) | 29 | 500 | 9.9 |
| P-8 | 6 | Pierre Shale (CH) | - | 500 | 2.2 |
| P-8 | 9 | Pierre Shale (CH) | - | 500 | 1.2 |

The results indicate that the near-surface clayey soils exhibit an average swell on the order of 2%, while the deeper, more bedrock-like materials exhibit widely varying swells, with an average swell of 3.3%

3.5 GROUNDWATER

Groundwater was not encountered during drilling at any of the boring locations to the maximum depth explored of 10.5 feet. It is not anticipated that groundwater will affect construction of the pavement sections or storm sewer installation. Soil moisture levels and groundwater levels commonly vary over time and space depending upon seasonal precipitation, irrigation practices, land use, and runoff conditions. Accordingly, the soil moisture and groundwater data in this report pertain only to the locations and times at which exploration was performed. It should be noted that Kleinfelder has not performed a hydrologic study to identify seasonal changes in groundwater conditions.

Table 2 – Pavement Design Parameters

| Pavement Design Parameters | |
|--|-----------------------------------|
| Roadway Classification | Collector Industrial - Commercial |
| 20 year, 18-kip ESAL | 730,000 |
| Initial Serviceability Index | 4.50 |
| Terminal Serviceability Index | 2.30 |
| Overall Standard Deviation | 0.45 |
| Reliability [%] | 90 |
| R-Value | 7 |
| Resilient Modulus (M _R), psi | 5,040 |
| Strength Coefficients | |
| New HMA | 0.44 |
| New ABC | 0.12 |
| Granular Subbase | 0.09 |

4.1.3 Design Sections

The following describes our recommended minimum pavement section thickness based on the City’s preferred three-layer section alternative, consisting of HMA over ABC over granular subbase. .

A new composite pavement section constructed, as described below, assumes that the existing subgrade can be removed to make room for the new pavement section, followed by 8-inches of scarification, moisture treatment, and compaction of the remaining subgrade materials as described in Section 4.2.2, and placement of new HMA and ABC on the properly prepared subgrade materials. Based on the subgrade strength characteristics and pavement design parameters described in Section 4.1.2, the minimum recommended composite pavement section thickness is presented in Table 3 below.

Table 3 – Minimum Recommended Composite Pavement Layer Thicknesses¹

| |
|---|
| <p>5-inches HMA <i>overlying</i></p> <p>6-inches ABC <i>overlying</i></p> <p>18-inches Granular Subbase²</p> |
| <ol style="list-style-type: none"> 1. Overlying properly prepared subgrade per Section 4.2.2 2. Subbase meeting requirements of imported structural fill and compaction requirements presented in Sections 4.2.4 and 4.2.5, respectively. |

4.2.2 Subgrade Preparation

Any obviously unsuitable materials present (e.g., debris, organic materials, waste) should be completely removed. Remove the stripped materials for offsite disposal in accordance with local laws and regulations.

Prior to placement of pavement sections and subsequent to installation of storm sewer pipeline, processing of the subgrade should be performed. This should include scarifying the subgrade as necessary to a minimum depth of 8 inches, moisture conditioning of the subgrade soils to within a range of -2 to +2 percent of optimum moisture content, and compacting to a minimum of 92% of the laboratory maximum Proctor dry density (ASTM D 1557) for trench backfill soils, or minimum 95% (ASTM D 1557) for pavement subgrade and existing base course. Subsequent fill should be moisture conditioned as above and compacted as recommended in Table 5 in Section 4.2.4 of this report.

Any soft and/or wet areas exposed during the excavation process may need to be stabilized prior to placement of new fill and pavement sections to create a stable, unyielding construction platform. The method and extent of stabilization will depend on the actual conditions encountered, and the more appropriate method of stabilization will likely be best determined in the field at the time of excavation, by Kleinfelder representatives. A typical stabilization method includes utilizing geo-grid such as Tensar TX140 or TX160, and Class 6 Aggregate Base Course (ABC) to form a stable base on which to place the pavement section. Installation typically includes placement of the geo-grid directly on subgrade with on the order of 12 to 18 inches of ABC above the grid. Thicknesses will vary depending on actual conditions encountered and would require adjustment during construction.

Prior to placing the pavement section including aggregate base course, the pavement subgrade should be proof-rolled with a heavily loaded pneumatic-tired vehicle, such fully loaded water truck, after preparation. Areas that pump or deform significantly under heavy wheel loads are not stable and should be removed to a maximum depth of 2 feet and replaced with granular structural fill to achieve a stable subgrade prior to paving. Care should be taken to ensure areas around manholes or other utility protrusions are proof-rolled adequately.

4.2.3 Excavation Characteristics

Based on our subsurface drilling information, excavation into the overburden soil material can likely be accomplished utilizing conventional standard duty earth moving equipment. Based on blow count data and visual observation, the weathered shale bedrock encountered was judged to

to the recommendations in Section 4.2.5 of this report. The native subgrade to receive structural fill should be prepared in accordance with Section 4.2.2.

Table 5 – Imported Structural Fill Criteria

| Gradation Requirements | |
|---|-----------------|
| Standard Sieve Size | Percent Passing |
| 2 inch | 100 |
| No. 200 | 10 - 30 |
| Plasticity Requirements (Atterberg Limits) | |
| Liquid Limit | 30 or less |
| Plasticity Index | 6 or less |

A representative of Kleinfelder should perform testing and observation of the subgrade structural fill placement.

4.2.5 Compaction Requirements

Soil and aggregate materials should be placed on a horizontal plane and placed in loose lifts not to exceed 8 inches in thickness, unless otherwise accepted by the geotechnical engineer. Materials should be moisture-conditioned and compacted according to following criteria.

Table 6 – Subgrade Preparation and Fill Placement Criteria

| Fill Location | Material Type | Minimum Percent Compaction (ASTM D-1557) | Moisture Content |
|-------------------------------|--|---|-------------------------|
| Pavement Subgrade and Subbase | On-site soils/ Imported Structural Fill | 95 | ± 2 % of optimum |
| Utility Trench Backfill | Imported Structural Fill | 92 | ± 2 % of optimum |
| Aggregate Base Course (ABC) | Imported CDOT Class 6 ABC/ Recycled Asphalt Pavement (See Section 4.2.1) | 95 | ± 2 % of optimum |

4.2.6 Trench Backfill

Backfill material for trenches should be free of humus, vegetable, or other organic matter, frozen material, clods, sticks and debris. In addition, rock particles and hard earth clods larger than 3 inches will be removed. However, backfill material in the “pipe zone” (from the trench floor to 1 foot above the top of pipe) should not contain rock particles larger than 1 inch. Requirements specified by the utility agency for bedding and pipe-zone fill should be observed and take

program. This is very important to prevent surface water (especially from slow infiltration from sources such as snow melt and surface run-off) from entering cracks and wetting the subgrade. Due to temperature fluctuations in Colorado significant separations can also occur at interfaces between the asphalt pavement and curbs, concrete flatwork, and other features. These areas generally result in a high rate of premature distress and failure that can propagate well beyond the original problem area. Any cracks or openings in the finished pavement surface should be sealed and/or repaired as quickly as possible.

4.2.10 Concrete and Water Soluble-Sulfate Content

The concentration of water-soluble sulfates measured on subsurface soil samples submitted for testing was found to be 1.547 percent for the native soils. In accordance with ACI 318, the requirements for concrete exposed to sulfate – containing soils are presented in following table.

Table 7 – Requirements for Concrete Exposed to Sulfate-Containing Soils

| Sulfate Exposure | Water soluble sulfate (SO ₄) in soil, percent by weight | Cement Type |
|------------------|---|---|
| Negligible | 0.00 to 0.10 | ----- |
| Moderate | 0.10 to 0.20 | II, IP(MS), IS(MS), P(MS), I(PM)(MS), I(SM)(MS) |
| Severe | 0.20 to 2.00 | V |
| Very Severe | Over 2.00 | V plus pozzolan |

The concentration of water-soluble sulfates measured on subsurface soils submitted for testing represents a severe sulfate attack on concrete exposed to the on-site soils. These results indicate that a locally available Type V cement would be appropriate for concrete in contact with the on-site soils or imported structural fill meeting the requirements presented in this report.

Contractor's work and how they will be handled. The meeting also allows us to set up the communication and coordination needed for construction observation and testing, and to identify points of confusion or disagreement that need to be resolved.

5.4 CONSTRUCTION OBSERVATION AND TESTING

The recommendations in this report depend on the assumption that an adequate program of testing and observation will be made during construction to verify compliance with our recommendations. These tests and observations may include, but not necessarily be limited to, the following:

- Observations and density testing during site preparation and earthwork;
- Observation and testing of subgrade preparation, placement of ABC and HMAM; and
- Consultation as may be required during construction.

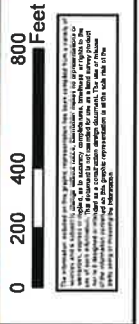
Adequate testing and observation is essential to successful and economical completion of a construction project. Testing and observation allow us to verify that our recommendations are being followed. They also make it possible to identify new or changed conditions that require us to modify those recommendations. Construction testing and observation should be scheduled in advance so that our personnel can plan to be available for the work. It is also desirable that we receive a set of project plans and specifications at the time our work is first scheduled.





FIGURES
SITE VICINITY MAP
EXPLORATION LOCATION PLAN







| | | | |
|--|---|--|--------------------|
| | PROJECT NO. 20170689 DRAWN: 7/19/2016 CHECKED BY: J. McCall FILE NAME: P-8-ExplorationLocation.mxd | EXPLORATION LOCATION PLAN PAVEMENT SECTION THICKNESS DESIGN PROPOSED WILLIS BOULEVARD OUTLOOK BOULEVARD EXTENSIONS SOUTH OF DILLON DRIVE PUEBLO, COLORADO | FIGURE 2 |
| | <p>Legend</p> <p> Approximate Boring Location</p> | | |



SAMPLE/SAMPLER TYPE GRAPHICS

-  **MODIFIED CALIFORNIA SAMPLER**
(2 or 2-1/2 in. (50.8 or 63.5 mm.) outer diameter)
-  **STANDARD PENETRATION SPLIT SPOON SAMPLER**
(2 in. (50.8 mm.) outer diameter and 1-3/8 in. (34.9 mm.) inner diameter)


























GROUND WATER GRAPHICS


-  WATER LEVEL (level where first observed)
-  WATER LEVEL (level after exploration completion)
-  WATER LEVEL (additional levels after exploration)
-  OBSERVED SEEPAGE

NOTES

- The report and graphics key are an integral part of these logs. All data and interpretations in this log are subject to the explanations and limitations stated in the report.
- Lines separating strata on the logs represent approximate boundaries only. Actual transitions may be gradual or differ from those shown.
- No warranty is provided as to the continuity of soil or rock conditions between individual sample locations.
- Logs represent general soil or rock conditions observed at the point of exploration on the date indicated.
- In general, Unified Soil Classification System designations presented on the logs were based on visual classification in the field and were modified where appropriate based on gradation and index property testing.
- Fine grained soils that plot within the hatched area on the Plasticity Chart, and coarse grained soils with between 5% and 12% passing the No. 200 sieve require dual USCS symbols, i.e., GW-GM, GP-GM, GW-GC, GP-GC, GC-GM, SW-SM, SP-SM, SW-SC, SP-SC, SC-SM.
- If sampler is not able to be driven at least 6 inches then 50/X indicates number of blows required to drive the identified sampler X inches with a 140 pound hammer falling 30 inches.

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487)

| | | | | | | |
|--|---|---|--|---|---|---|
| GRAVELS (More than half of coarse fraction is larger than the #4 sieve) | CLEAN GRAVEL WITH <5% FINES | Cu ≥ 4 and 1 ≤ Cc ≤ 3 |  | GW | WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES | |
| | | Cu < 4 and/or 1 > Cc > 3 |  | GP | POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES | |
| | GRAVELS WITH 5% TO 12% FINES | Cu ≥ 4 and 1 ≤ Cc ≤ 3 |  | GW-GM | WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES | |
| | | |  | GW-GC | WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES | |
| | | |  | GP-GM | POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES | |
| | | |  | GP-GC | POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES | |
| | GRAVELS WITH > 12% FINES | |  | GM | SILTY GRAVELS, GRAVEL-SILT-SAND MIXTURES | |
| | | |  | GC | CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES | |
| | | |  | GC-GM | CLAYEY GRAVELS, GRAVEL-SAND-CLAY-SILT MIXTURES | |
| | COARSE GRAINED SOILS (More than half of material is smaller than the #200 sieve) | CLEAN SANDS WITH <5% FINES | Cu ≥ 6 and 1 ≤ Cc ≤ 3 |  | SW | WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES |
| | | | Cu < 6 and/or 1 > Cc > 3 |  | SP | POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES |
| | | SANDS WITH 5% TO 12% FINES | Cu ≥ 6 and 1 ≤ Cc ≤ 3 |  | SW-SM | WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES |
| | | |  | SW-SC | WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES | |
| | | |  | SP-SM | POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES | |
| | | |  | SP-SC | POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES | |
| SANDS WITH > 12% FINES | | |  | SM | SILTY SANDS, SAND-GRAVEL-SILT MIXTURES | |
| | | |  | SC | CLAYEY SANDS, SAND-GRAVEL-CLAY MIXTURES | |
| | | |  | SC-SM | CLAYEY SANDS, SAND-SILT-CLAY MIXTURES | |
| FINE GRAINED SOILS (More than half of material is smaller than the #200 sieve) | | SILTS AND CLAYS (Liquid Limit less than 50) | |  | ML | INORGANIC SILTS AND VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS, SILTS WITH SLIGHT PLASTICITY |
| | | | |  | CL | INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS |
| | | | |  | CL-ML | INORGANIC CLAYS-SILTS OF LOW PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS |
| | SILTS AND CLAYS (Liquid Limit greater than 50) | |  | OL | ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PLASTICITY | |
| | | |  | MH | INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILT | |
| | | |  | CH | INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS | |
| |  | OH | ORGANIC CLAYS & ORGANIC SILTS OF MEDIUM-TO-HIGH PLASTICITY | | | |

| | | | |
|---|-----------------------|--|--------|
|  <p>KLEINFELDER Bright People. Right Solutions.</p> | PROJECT NO.: 20170699 | <p>GRAPHICS KEY</p> <p>Pavement Section Thickness Design Proposed Wills Blvd and Outlook Blvd Extensions South of Dillon Drive Pueblo, Colorado</p> | FIGURE |
| | DRAWN BY: MAP | | A-1 |
| CHECKED BY: YL | DATE: 7/12/2016 | | |
| REVISED: - | | | |


PLOTTED: 07/12/2016 11:57:44 AM BY: MPalmer

| | | |
|--|--|---|
| Date Begin - End: 6/17/2016 | Drilling Company: Custom Auger | BORING LOG P-1 |
| Logged By: J. Ibarra | Drill Crew: Jake, Dave | |
| Hor.-Vert. Datum: Not Available | Drilling Equipment: CME-55 | Hammer Type - Drop: 140 lb. Cathead - 30 in. |
| Plunge: -90 degrees | Drilling Method: Solid Stem Auger | |
| Weather: Sunny, Clear | Exploration Diameter: 4 in. O.D. | |

| Depth (feet) | Graphical Log | FIELD EXPLORATION | | | LABORATORY RESULTS | | | | | | | Additional Tests/Remarks |
|------------------------|---------------|---|-------------------|---|---------------------------|-------------|-------------------|--------------------|----------------|------------------|--------------|---|
| | | Surface Condition: Graded Dirt/Weeds | Sample Type | Blow Counts (BC) = Uncorr. Blows/6 in. | Recovery (NR=No Recovery) | USCS Symbol | Water Content (%) | Dry Unit Wt. (pcf) | Passing #4 (%) | Passing #200 (%) | Liquid Limit | |
| Lithologic Description | | | | | | | | | | | | |
| 5 | | Sandy Lean CLAY (CL): fine to coarse-grained sand, with fine-grained gravel, light brown, brown, dark brown, moist, very stiff to hard | BC=9 16 | 6" | | | | | | | | Hole moved 13 feet south due to utilities |
| | | | BC=18 30 | 10" | CL | 14.5 | 84.0 | 99 | 86 | 44 | 19 | Expansion/Compression= Expansion= 1.8% under 0.2 ksf when wetted. |
| | | Pierre Shale Formation CLAYSTONE: fine-grained, gray, yellow, dark brown, moist, hard | BC=19 25 | 5" | | | | | | | | |
| 10 | | | BC=13 28 46 | 10" | | | | | | | | |

The boring was terminated at approximately 10.5 ft. below ground surface. The boring was backfilled with auger cuttings on June 17, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

| | | | |
|---|-----------------------|---|--------------|
|  <p>KLEINFELDER Bright People. Right Solutions.</p> | PROJECT NO.: 20170699 | BORING LOG P-1 | BORING |
| | DRAWN BY: MAP | Pavement Section Thickness Design Proposed Wills Blvd and Outlook Blvd Extensions South of Dillon Drive Pueblo, Colorado | P-1 |
| CHECKED BY: YL | DATE: 7/12/2016 | | |
| REVISED: - | | | PAGE: 1 of 1 |

GINT FILE: PROJECTWISE_20170699_wills Blvd Outlook Blvd Extensions.gpj
GINT TEMPLATE: PROJECTWISE_KLF_STANDARD_GINT_LIBRARY_2016.GLB | KLF_BORING/TEST_PIT_SOIL.LOG

PLOTTED 07/12/2016 11:57:44 AM BY: MPalmer


| | | |
|--|--|---|
| Date Begin - End: 6/17/2016 | Drilling Company: Custom Auger | BORING LOG P-3 |
| Logged By: J. Ibarra | Drill Crew: Jake, Dave | |
| Hor.-Vert. Datum: Not Available | Drilling Equipment: CME-55 | Hammer Type - Drop: 140 lb. Cathead - 30 in. |
| Plunge: -90 degrees | Drilling Method: Solid Stem Auger | |
| Weather: Sunny, Clear | Exploration Diameter: 4 in. O.D. | |

| Depth (feet) | Graphical Log | FIELD EXPLORATION | | | LABORATORY RESULTS | | | | | | | | Additional Tests/ Remarks |
|------------------------|---|--------------------------------------|-------------|--|------------------------------|----------------|----------------------|--------------------|----------------|------------------|--------------|--|------------------------------|
| | | Surface Condition: Graded Dirt/Weeds | Sample Type | Blow Counts(BC) Uncorr. Blows/6 in. | Recovery (NR=No Recovery) | USCS Symbol | Water Content (%) | Dry Unit Wt. (pcf) | Passing #4 (%) | Passing #200 (%) | Liquid Limit | Plasticity Index (NP=NonPlastic) | |
| Lithologic Description | | | | | | | | | | | | | |
| | Lean CLAY (CL) : with sand, fine to coarse-grained sand, brown, light brown, moist, very stiff to hard | BC=9 10 | 11" | CL | 14.3 | 92.6 | 100 | 82 | 46 | 24 | | | |
| | - less sand, increased fines below 4 feet | BC=18 23 | 11" | | | | | | | | | | |
| 5 | | BC=9 11 17 | 14" | | | | | | | | | | |
| | Pierre Shale Formation CLAYSTONE : fine-grained, light brown, tan, yellow, moist, hard | BC=20 39 | 11" | | | | | | | | | Increased drill resistance at 8.5 feet | |
| 10 | | | | | | | | | | | | | |

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings on June 17, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

GINT FILE PROJECTWISE_20170609_wills Blvd Outlook Blvd Extensions.gpj
GINT TEMPLATE PROJECTWISE_KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORINGTEST_PIT_SOIL.LOG]


| | | | |
|--|-----------------------|--|--------------|
|  <p>KLEINFELDER <i>Bright People. Right Solutions.</i></p> | PROJECT NO.: 20170699 | <p>BORING LOG P-3</p> <p>Pavement Section Thickness Design Proposed Wills Blvd and Outlook Blvd Extensions South of Dillon Drive Pueblo, Colorado</p> | BORING |
| | DRAWN BY: MAP | | P-3 |
| CHECKED BY: YL | DATE: 7/12/2016 | REVISED: - | PAGE: 1 of 1 |

PLOTTED: 07/12/2016 11:57 AM BY: MPalmer

Date Begin - End: 6/17/2016 **Drilling Company:** Custom Auger **BORING LOG P-5**
Logged By: J. Ibarra **Drill Crew:** Jake, Dave
Hor.-Vert. Datum: Not Available **Drilling Equipment:** CME-55 **Hammer Type - Drop:** 140 lb. Cathead - 30 in.
Plunge: -90 degrees **Drilling Method:** Solid Stem Auger
Weather: Sunny, Clear **Exploration Diameter:** 4 in. O.D.

| Depth (feet) | Graphical Log | FIELD EXPLORATION | | | | LABORATORY RESULTS | | | | | | | | Additional Tests/ Remarks |
|------------------------|---------------|---|-------------------|---|------------------------------|--|----------------------|--------------------|----------------|------------------|--------------|---|--|------------------------------|
| | | Surface Condition: Graded Dirt/Weeds | Sample Type | Blow Counts(BC)= Uncorr. Blows/6 In. | Recovery (NR=No Recovery) | USCS Symbol | Water Content (%) | Dry Unit Wt. (pcf) | Passing #4 (%) | Passing #200 (%) | Liquid Limit | Plasticity Index (NP=NonPlastic) | | |
| Lithologic Description | | | | | | | | | | | | | | |
| | | Lean CLAY (CL): with sand, light brown, tan, moist, very stiff | | | | | | | | | | | | |
| 5 | | | BC=11 11 17 | 13" | | | | | | | | | | |
| | | Pierre Shale Formation CLAYSTONE: fine-grained, brown, dark brown, orange, moist, hard | | | | | | | | | | | | |
| 10 | | | BC=18 25 | 10" | CH | 12.3 | 112.4 | 100 | 84 | 53 | 29 | Expansion/Compression= Expansion= 9.9% under 0.5 ksf when wetted. | | |
| | | | BC=20 48 | 7" | | | | | | | | | | |
| | | The boring was terminated at approximately 11 ft. below ground surface. The boring was backfilled with auger cuttings on June 17, 2016. | | | | <u>GROUNDWATER LEVEL INFORMATION:</u> Groundwater was not encountered during drilling or after completion. <u>GENERAL NOTES:</u> | | | | | | | | |
| 15 | | | | | | | | | | | | | | |

gINT FILE: PROJECTWISE_20170699_wills Blvd Outlook Blvd Extensions 99j
 gINT TEMPLATE: PROJECTWISE_KLF_STANDARD_gINT_LIBRARY_2015_GLB [KLF_BORINGTEST.PIT SOIL LOG]

| | | | |
|---|--|--|---------------------------------|
|  <p>KLEINFELDER Bright People. Right Solutions.</p> | PROJECT NO.: 20170699 | BORING LOG P-5 Pavement Section Thickness Design Proposed Wills Blvd and Outlook Blvd Extensions South of Dillon Drive Pueblo, Colorado | BORING P-5 |
| | DRAWN BY: MAP CHECKED BY: YL DATE: 7/12/2016 REVISED: - | | |

PLOTTED: 07/12/2016 11:57 AM BY: MPalmer
 gINT FILE: PROJECTWISE_20170699_wills Blvd Outlook Blvd Extensions.gpj
 gINT TEMPLATE: PROJECTWISE_KLF_STAND-RT_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

| | | |
|--|--|---|
| Date Begin - End: 6/17/2016 | Drilling Company: Custom Auger | BORING LOG P-7 |
| Logged By: J. Ibarra | Drill Crew: Jake, Dave | |
| Hor.-Vert. Datum: Not Available | Drilling Equipment: CME-55 | Hammer Type - Drop: 140 lb. Cathead - 30 in. |
| Plunge: -90 degrees | Drilling Method: Solid Stem Auger | |
| Weather: Sunny, Clear | Exploration Diameter: 4 in. O.D. | |

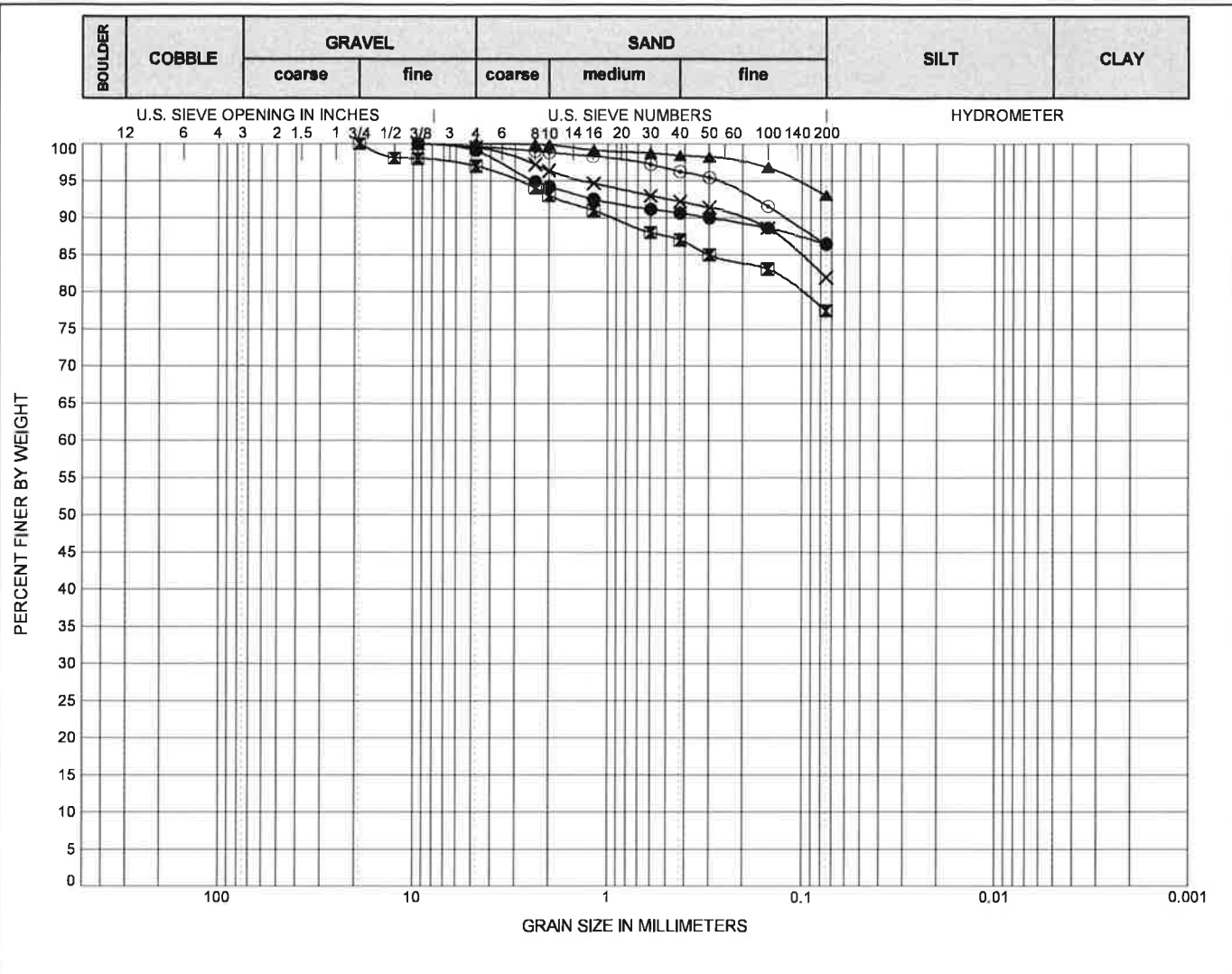
| Depth (feet) | Graphical Log | FIELD EXPLORATION | | | | LABORATORY RESULTS | | | | | | | Additional Tests/ Remarks |
|------------------------|--|--------------------------------------|-------------|---|------------------------------|--------------------|----------------------|--------------------|----------------|------------------|--------------|--------------------------------------|------------------------------|
| | | Surface Condition: Graded Dirt/Weeds | Sample Type | Blow Counts(BC)= Uncorr. Blows/6 in. | Recovery (NR=No Recovery) | USCS Symbol | Water Content (%) | Dry Unit Wt. (pcf) | Passing #4 (%) | Passing #200 (%) | Liquid Limit | Plasticity Index (NP=NonPlastic) | |
| Lithologic Description | | | | | | | | | | | | | |
| | Sandy Lean CLAY (CL): fine to coarse-grained sand, light brown, tan, moist, stiff to very stiff | BC=12 18 | 10" | | | | | | | | | | |
| | Pierre Shale Formation Weathered CLAYSTONE: fine to coarse-grained, light brown, tan, orange, brown, moist, very stiff to hard | BC=7 9 | 9" | | | | | | | | | Increased drill resistance at 3 feet | |
| 5 | | BC=15 25 | 10" | CH | 11.8 | 122.3 | 100 | 95 | 56 | 35 | | | |
| 10 | | BC=15 17 21 | 16" | | | | | | | | | | |

The boring was terminated at approximately 10.5 ft. below ground surface. The boring was backfilled with auger cuttings on June 17, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

| | | | |
|--|-----------------------|--|--------------|
| KLEINFELDER <i>Bright People. Right Solutions.</i> | PROJECT NO.: 20170699 | BORING LOG P-7 Pavement Section Thickness Design Proposed Wills Blvd and Outlook Blvd Extensions South of Dillon Drive Pueblo, Colorado | BORING |
| | DRAWN BY: MAP | | P-7 |
| | CHECKED BY: YL | | |
| | DATE: 7/12/2016 | | |
| | REVISED: - | | |
| | | | PAGE: 1 of 1 |

APPENDIX B
GEOTECHNICAL LABORATORY TEST RESULTS



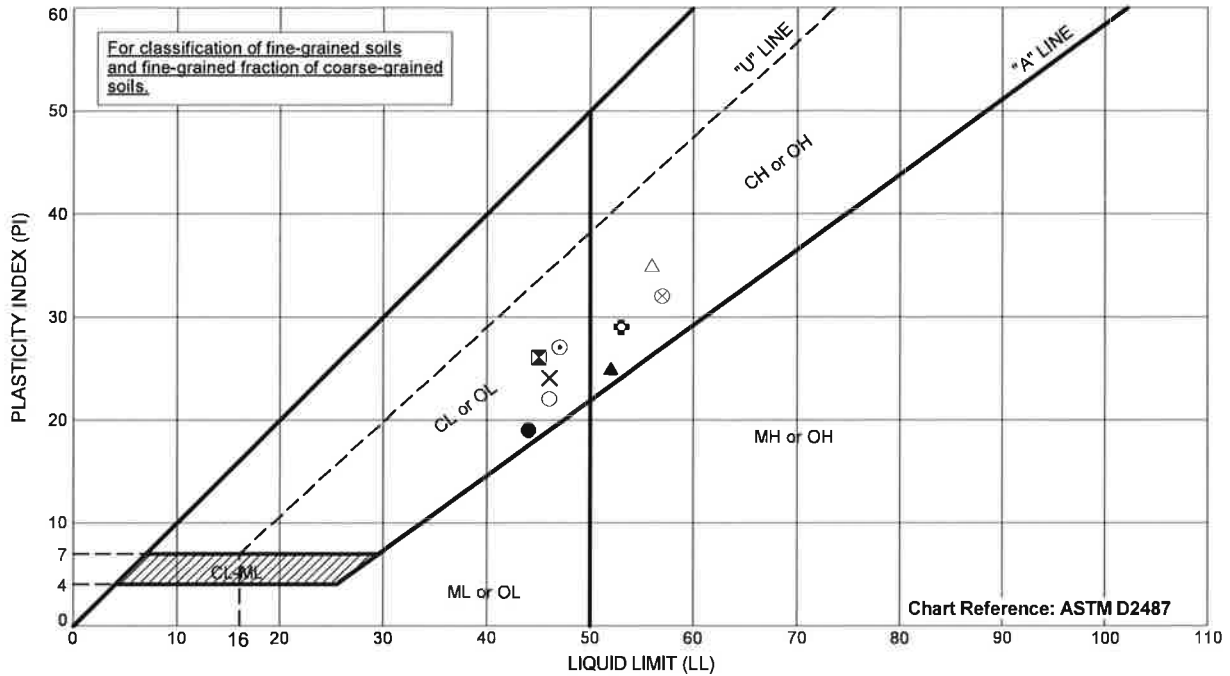
| Exploration ID | Depth (ft.) | Sample Description | LL | PL | PI |
|------------------------|-------------|--------------------------|----|----|----|
| ● P-1 | 4 | LEAN CLAY (CL) | 44 | 25 | 19 |
| ☒ P-1 to P-8 Composite | 0 - 4 | LEAN CLAY with SAND (CL) | 45 | 19 | 26 |
| ▲ P-2 | 6 | FAT CLAY (CH) | 52 | 27 | 25 |
| ✕ P-3 | 0 | LEAN CLAY with SAND (CL) | 46 | 22 | 24 |
| ⊙ P-4 | 1 | LEAN CLAY (CL) | 47 | 20 | 27 |

| Exploration ID | Depth (ft.) | D100 | D60 | D30 | D10 | Cc | Cu | Passing 3/4" | Passing #4 | Passing #200 | %Silt | %Clay |
|------------------------|-------------|------|-----|-----|-----|----|----|--------------|------------|--------------|-------|-------|
| ● P-1 | 4 | 9.5 | NM | NM | NM | NM | NM | | 99 | 86 | NM | NM |
| ☒ P-1 to P-8 Composite | 0 - 4 | 19 | NM | NM | NM | NM | NM | 100 | 97 | 78 | NM | NM |
| ▲ P-2 | 6 | 4.75 | NM | NM | NM | NM | NM | | 100 | 93 | NM | NM |
| ✕ P-3 | 0 | 9.5 | NM | NM | NM | NM | NM | | 100 | 82 | NM | NM |
| ⊙ P-4 | 1 | 9.5 | NM | NM | NM | NM | NM | | 100 | 86 | NM | NM |

Coefficients of Uniformity - $C_u = D_{60} / D_{10}$
 Coefficients of Curvature - $C_c = (D_{30})^2 / D_{60} D_{10}$
 D60 = Grain diameter at 60% passing
 D30 = Grain diameter at 30% passing
 D10 = Grain diameter at 10% passing

Sieve Analysis and Hydrometer Analysis testing performed in general accordance with ASTM D422.
 NP = Nonplastic
 NM = Not Measured

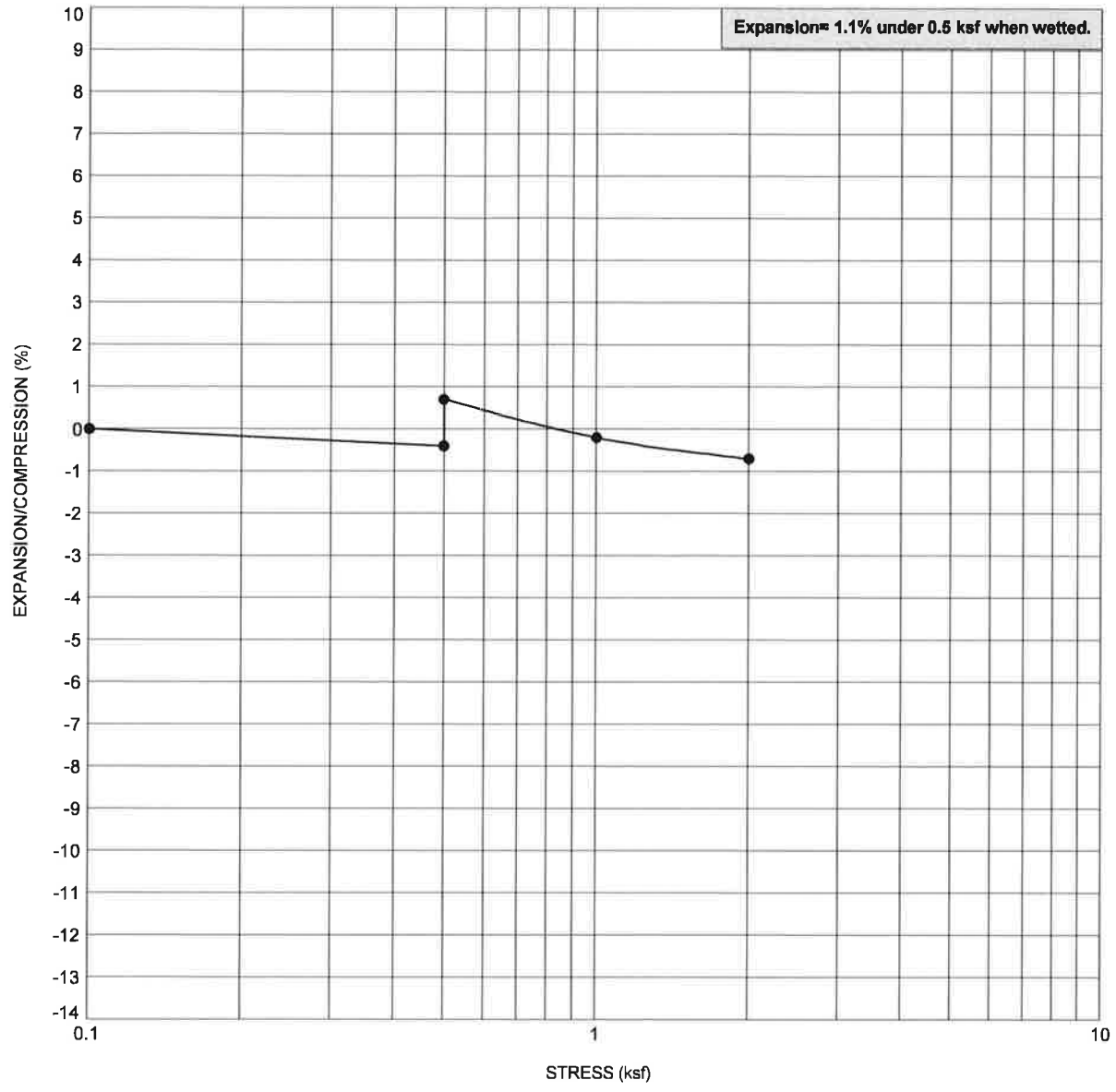
| | | | |
|--|--|--|--------------------------|
| | PROJECT NO.: 20170699 DRAWN BY: MAP CHECKED BY: DATE: REVISED: | SIEVE ANALYSIS Pavement Section Thickness Design Proposed Wills Blvd and Outlook Blvd Extensions South of Dillon Drive Pueblo, Colorado | FIGURE B-2 |
|--|--|--|--------------------------|



| Exploration ID | Depth (ft.) | Sample Description | Passing #200 | LL | PL | PI |
|------------------------|-------------|--------------------------|--------------|----|----|----|
| ● P-1 | 4 | LEAN CLAY (CL) | 86 | 44 | 25 | 19 |
| ☒ P-1 to P-8 Composite | 0 - 4 | LEAN CLAY with SAND (CL) | 78 | 45 | 19 | 26 |
| ▲ P-2 | 6 | FAT CLAY (CH) | 93 | 52 | 27 | 25 |
| ✕ P-3 | 0 | LEAN CLAY with SAND (CL) | 82 | 46 | 22 | 24 |
| ⊙ P-4 | 1 | LEAN CLAY (CL) | 86 | 47 | 20 | 27 |
| ⊕ P-5 | 8 | FAT CLAY with SAND (CH) | 84 | 53 | 24 | 29 |
| ○ P-6 | 9 | LEAN CLAY (CL) | 98 | 46 | 24 | 22 |
| △ P-7 | 7 | FAT CLAY (CH) | 95 | 56 | 21 | 35 |
| ⊗ P-8 | 3 | FAT CLAY (CH) | 96 | 57 | 25 | 32 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Testing performed in general accordance with ASTM D4318.
 NP = Nonplastic
 NM = Not Measured

| | | | |
|--|---|--|--------------------------|
| | PROJECT NO.: 20170699 | ATTERBERG LIMITS Pavement Section Thickness Design Proposed Wills Blvd and Outlook Blvd Extensions South of Dillon Drive Pueblo, Colorado | FIGURE B-4 |
| | DRAWN BY: MAP CHECKED BY: DATE: REVISED: - | | |



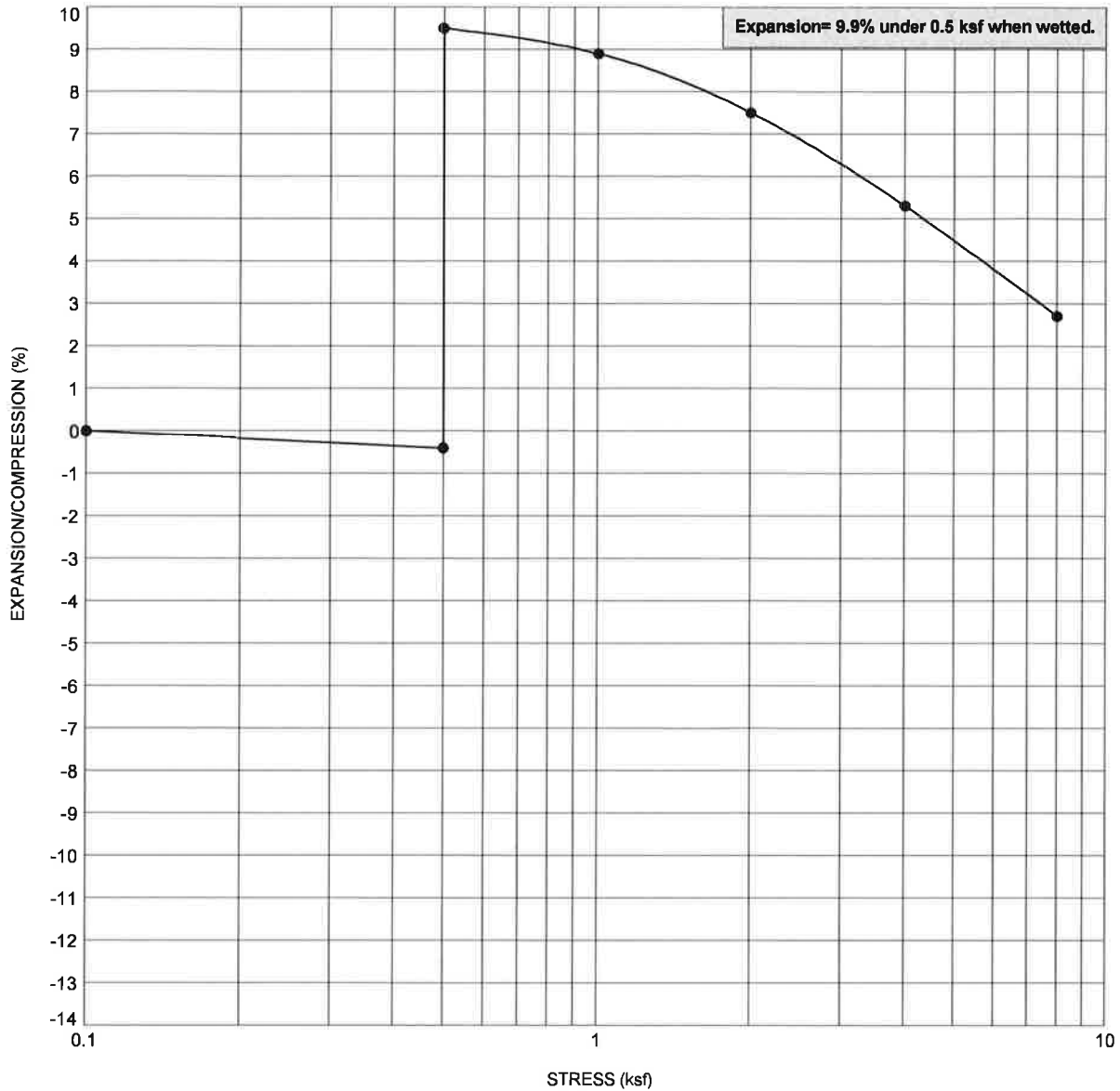
Expansion= 1.1% under 0.5 ksf when wetted.

| Exploration ID | Depth (ft.) | Sample Description | Initial Water Content (%) | Initial Dry Unit Wt. (pcf) | Final Water Content (%) | Final Dry Unit Wt. (pcf) |
|----------------|-------------|--------------------|---------------------------|----------------------------|-------------------------|--------------------------|
| P-2 | 9 | | 10.6 | 109.9 | 20.3 | 109.9 |

Testing performed in general accordance with ASTM D4546 Method C.

| | | | |
|--|--|--|--------------------------|
| | PROJECT NO.: 20170699 DRAWN BY: MAP CHECKED BY: DATE: REVISED: - | ONE-DIMENSIONAL EXPANSION OR COMPRESSION OF COHESIVE SOILS Pavement Section Thickness Design Proposed Wills Blvd and Outlook Blvd Extensions South of Dillon Drive Pueblo, Colorado | FIGURE B-6 |
|--|--|--|--------------------------|

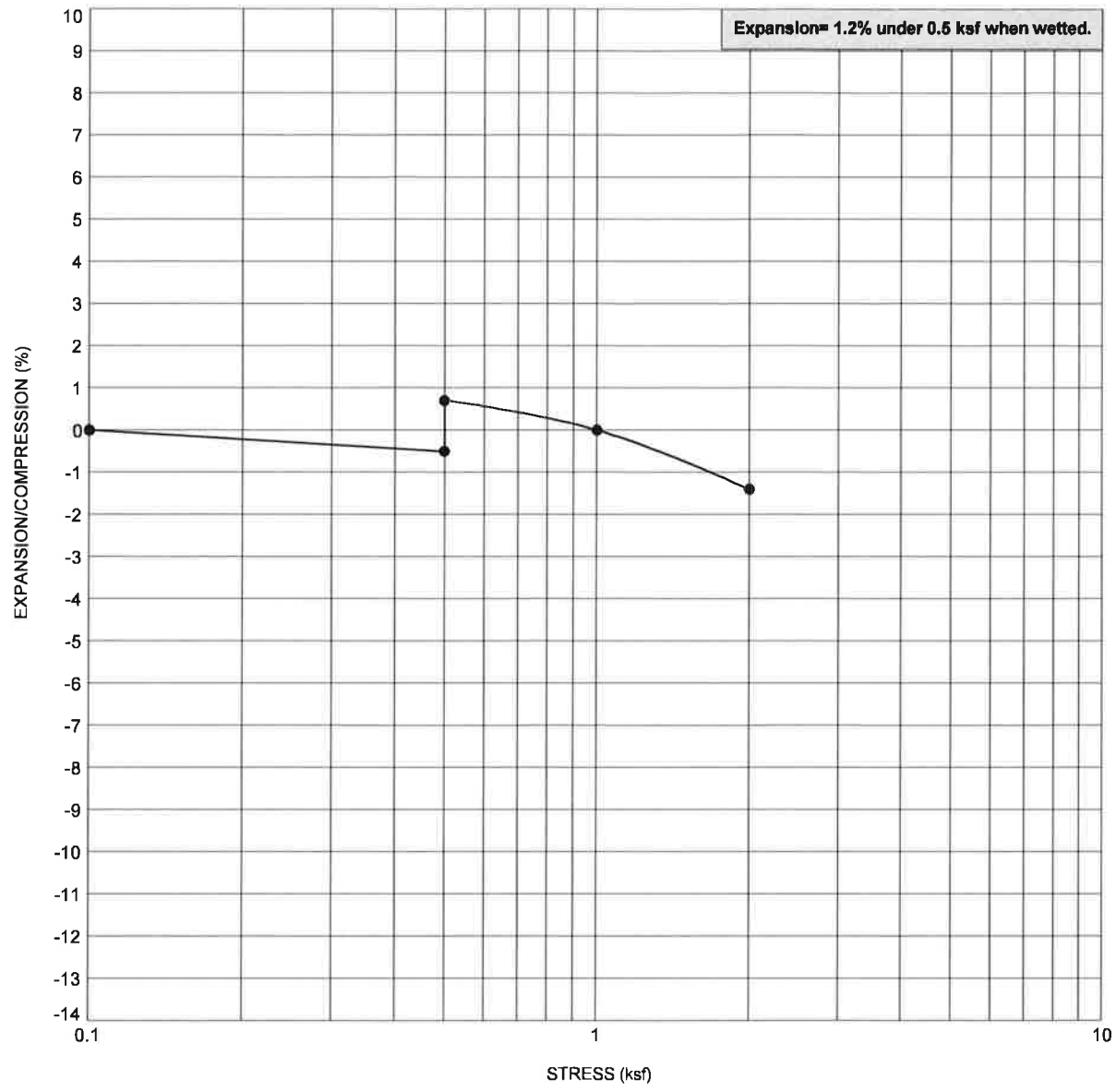
GINT FILE: PROJECTWISE: 20170699_wills Blvd Outlook Blvd Extensions (p) | GINT TEMPLATE: PROJECTWISE: KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_EXPANSION/COMPRESSION (SINGLE)] | PLOTTED: 07/27/2016 12:32 PM BY: MPalmer



| Exploration ID | Depth (ft.) | Sample Description | Initial Water Content (%) | Initial Dry Unit Wt. (pcf) | Final Water Content (%) | Final Dry Unit Wt. (pcf) |
|----------------|-------------|-------------------------|---------------------------|----------------------------|-------------------------|--------------------------|
| P-5 | 8 | FAT CLAY with SAND (CH) | 12.3 | 112.4 | 21.2 | 112.4 |

Testing performed in general accordance with ASTM D4546 Method C.

| | | | |
|--|--|--|---------------------------------|
| | PROJECT NO.: 20170699 DRAWN BY: MAP CHECKED BY: DATE: REVISED: - | ONE-DIMENSIONAL EXPANSION OR COMPRESSION OF COHESIVE SOILS Pavement Section Thickness Design Proposed Wills Blvd and Outlook Blvd Extensions South of Dillon Drive Pueblo, Colorado | FIGURE B-8 |
|--|--|--|---------------------------------|



| Exploration ID | Depth (ft.) | Sample Description | Initial Water Content (%) | Initial Dry Unit Wt. (pcf) | Final Water Content (%) | Final Dry Unit Wt. (pcf) |
|----------------|-------------|--------------------|---------------------------|----------------------------|-------------------------|--------------------------|
| P-8 | 9 | | 13.3 | 104.1 | 23.0 | 104.1 |

Testing performed in general accordance with ASTM D4546 Method C.

| | | | |
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| | PROJECT NO.: 20170699 DRAWN BY: MAP CHECKED BY: DATE: REVISED: - | ONE-DIMENSIONAL EXPANSION OR COMPRESSION OF COHESIVE SOILS Pavement Section Thickness Design Proposed Wills Blvd and Outlook Blvd Extensions South of Dillon Drive Pueblo, Colorado | FIGURE B-10 |
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APPENDIX C
ANALYTICAL LABORATORY TEST RESULTS

APPENDIX D
PAVEMENT SECTION THICKNESS CALCULATIONS



APPENDIX E
IMPORTANT INFORMATION ABOUT YOUR
GEOTECHNICAL ENGINEERING REPORT

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, *they are not final*, because the geotechnical engineer who developed them relied heavily on judgment and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* revealed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a full-time member of the design team, to:

- confer with other design-team members,
- help develop specifications,
- review pertinent elements of other design professionals' plans and specifications, and
- be on hand quickly whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction observation.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for informational purposes only*. To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report, but they may rely on the factual data relative to the specific times, locations, and depths/elevations referenced. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may

perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely*. Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures*. If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. As a general rule, *do not rely on an environmental report prepared for a different client, site, or project, or that is more than six months old*.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, none of the engineer's services were designed, conducted, or intended to prevent uncontrolled migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, *proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration*. Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. *Geotechnical engineers are not building-envelope or mold specialists*.



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