

**GENERAL NOTES**

- Profile design lines are based on centerline, as shown, unless otherwise noted.
- All new construction to conform to the specifications of El Paso County Planning and Community Development, Widefield Water and Sanitation District, and the Fountain Mutual Irrigation Company (FMIC). Any asphalt removed is to be replaced to meet the specifications of the El Paso County Planning and Community Development.
- For pavement design, curb and gutter, and sidewalks see individual plan and profile sheets. Pavement design to be based on Resistance Value 'R' derived from Irvem tests and are to be approved by the Engineering Division of the El Paso County Planning and Community Development prior to work above subgrade.
- At intersections, all curb returns will have 20-foot radius unless otherwise noted.
- All existing utilities have been shown according to the best available information. The contractor is responsible for field location and verification prior to beginning work. If it appears that there could be a conflict with any utilities, whether indicated on the plans or not, the contractor is to notify the engineer and owner immediately. The contractor is responsible for the protection and repair (if necessary) of all utilities.
- A Pre-Construction meeting shall be held with the El Paso County Planning and Community Development and Widefield Water and Sanitation District prior to any construction.
- Approved plans, Engineering Criteria Manual, etc. is required to be on-site at all times during construction.
- All necessary permits, such as SWMP, ESQCP, Fugitive Dust, Access, C.O.E. 404, etc. shall be obtained prior to construction.
- All handicap ramps to be per El Paso County Standard SD-2-40.
- The contractor shall coordinate exact locations and layout with the El Paso County Planning and Community Development on the placement of any pedestrian ramps prior to construction of the curb. Pedestrian ramp locations are as shown on the plans.
- Where appropriate, neatly saw cut all existing concrete and asphalt. Repair/replace all disturbed existing items with like materials and thicknesses.
- All disturbed areas shall be revegetated with native grasses within 21 days of excavation per Erosion Control Plan.
- The prepared Erosion/Sediment Control Plan is to be considered a part of these plans and its requirements adhered to during the construction of this project.
- All storm and sanitary sewer pipe lengths and slopes are figured from center of manhole or bend. Pipe lengths are given as a horizontal length.
- All storm sewer bedding to be per CDD Standards.
- All storm sewer pipe shall be Class III B Wall unless otherwise shown on the storm sewer plan and profile sheets.
- All wyes and bends used in construction of storm sewer facilities shall be factory fabricated, unless approved by the El Paso County Development Services Department.
- Construction and materials used in all storm and sanitary sewer manholes shall be per specifications. Storm sewer radial deflections to be grouted or installed per manufacturer's recommendations.
- Storm sewer manhole sizes as follows unless otherwise shown:  
18" thru 36" use 48" I.D. manhole  
42" thru 48" use 60" I.D. manhole  
54" thru 60" use 72" I.D. manhole  
NOTE: Manhole sizes tabulated here shall be increased, if necessary, to accommodate incoming laterals.
- Sanitary sewer manhole sizes and Woties per Widefield Water and Sanitation District Specifications. Sanitary sewers to be installed with Class 'C' bedding. Sanitary sewers deeper than 12-feet shall require Class 'B' bedding. Pipe used for construction of sanitary sewer shall be SDR 35 unless shown otherwise on plan and profiles.
- For additional utility notes, see Utility Plan and/or Service Plan.
- All horizontal stationing is based on the "Face of Curb" unless otherwise shown.
- All vertical design and top of curb are based on the design point shown in the typical cross section.
- The curb line design point is located at the intersection of the face and top of curb for the Type III Standard 6-inch vertical curb. See typical street section for design point locations.
- Water and sanitary sewer service provided by Widefield Water and Sanitation District. Telephone service provided by Qwest Communications. Gas service provided by Blackhills Energy. Electric service provided by Mountain View Electric.
- All utility construction to be conducted in conformance with the current Widefield Water and Sanitation District Specifications and/or El Paso County Specifications, whichever is greater.
- Vertical curb to be used between curb returns (CR) and at curb inlets. Transitions from ramp to vertical curb shall be 10-feet unless otherwise approved by the El Paso County Planning and Community Development. All other curb & gutter to be ramp curb & gutter.
- Cross pans to be 6" wide and per El Paso County Standard Detail SD-2-26.
- Contractor responsible for meeting all Widefield Water and Sanitation District criteria when connecting to existing stubs.
- Curb returns shall be straight graded from CR to CR unless otherwise noted.
- Inlets are Type 'R' inlets (CDD STD M-604-12) unless otherwise noted.
- USPS CBU Mailboxes are to be determined by USPS.

**BENCHMARK:** Monument is located at the Northwest corner of the intersection of Powers Boulevard and Fontaine Street. The monument is a 3-inch aluminum cap (FIMS ID #206). Located 51.3 feet west of the west edge of asphalt of Powers Blvd and 65.5 feet north of the north edge of asphalt of Fontaine Street. Elevation=5977.89 feet (NGVD 1929, 1960 Ad.)

**BASIS OF BEARINGS:** is based upon a portion of the Easterly boundary of the Glen at Widefield Subdivision Filing No. 58 as recorded under Reception No. 206712326 in the records of the Clerk and Recorder's Office, County of El Paso, State of Colorado; said line being also a portion of the Easterly Right-of-Way Autumn Glen Avenue as described in said subdivision, being monumented at the Point of Tangency of said boundary by a found cap and rebar marked "PLSC 25968" and at the Point of Curvature of said boundary by a found rebar and cap marked "PLSC 25968". Said line bears N29°46'44"W, a distance of 1154.12 feet.

**EL PASO COUNTY STANDARD NOTES**

- All drainage and roadway construction shall meet the standards and specifications of the City of Colorado Springs/El Paso County Drainage Criteria Manual, Volumes 1 and 2, and the El Paso County Engineering Criteria Manual.
- Contractor shall be responsible for the notification and field notification of all existing utilities, whether shown on the plans or not, before beginning construction. Location of existing utilities shall be verified by the contractor prior to construction. Call 811 to contact the Utility Notification Center of Colorado (UNCC).
- Contractor shall keep a copy of these approved plans, the Grading and Erosion Control Plan, the Stormwater Management Plan (SWMP), the soils and geotechnical report, and the appropriate design and construction standards and specifications at the job site at all times, including the following:  
a. El Paso County Engineering Criteria Manual (ECM)  
b. City of Colorado Springs/El Paso County Drainage Criteria Manual, Volumes 1 and 2  
c. Colorado Department of Transportation (CDOT) Standard Specifications for Road and Bridge Construction  
d. CDOT M & S Standards
- Notwithstanding anything depicted in these plans in words or graphic representation, all design and construction related to roads, storm drainage and erosion control shall conform to the standards and requirements of the most recent version of the relevant adopted El Paso County standards, including the Land Development Code, the Engineering Criteria Manual, the Drainage Criteria Manual, and the Drainage Criteria Manual Volume 2. Any deviations from regulations and standards must be requested, and approved, in writing. Any modifications necessary to meet criteria after-the-fact will be entirely the developer's responsibility to rectify.
- It is the design engineer's responsibility to accurately show existing conditions, both onsite and offsite, on the construction plans. Any modifications necessary due to conflicts, omissions, or changed conditions will be entirely the developer's responsibility to rectify.
- Contractor shall schedule a pre-construction meeting with El Paso County Planning and Community Development (P&CDD) - Inspections, prior to starting construction.
- It is the contractor's responsibility to understand the requirements of all jurisdictional agencies and to obtain all required permits, including but not limited to El Paso County Erosion and Stormwater Quality Control Permit (ESQCP), Regional Building Floodplain Development Permit, U.S. Army Corps of Engineers-issued 401 and/or 404 permits, and county and state fugitive dust permits.
- Contractor shall not deviate from the plans without first obtaining written approval from the design engineer and P&CDD. Contractor shall notify the design engineer immediately upon discovery of any errors or inconsistencies.
- All storm drain pipe shall be Class III RCP unless otherwise noted and approved by P&CDD.
- Contractor shall coordinate geotechnical testing per ECM standards. Pavement design shall be approved by El Paso County P&CDD prior to placement of curb and gutter and pavement.
- All construction traffic must enter/exit the site at approved construction access points.
- Sight visibility triangles as identified in the plans shall be provided at all intersections. Obstructions greater than 18 inches above flowline are not allowed within sight triangles.
- Signage and striping shall comply with El Paso County DOT and MUTCD criteria. [If applicable, additional signage and striping notes will be provided.]
- Contractor shall obtain any permits required by El Paso County DOT, including Work Within the Right-of-Way and Special Transport permits.
- The limits of construction shall remain within the property line unless otherwise noted. The owner/developer shall obtain written permission and easements, where required, from adjoining property owner(s) prior to any off-site disturbance, grading, or construction.

**INDEX OF SHEETS**

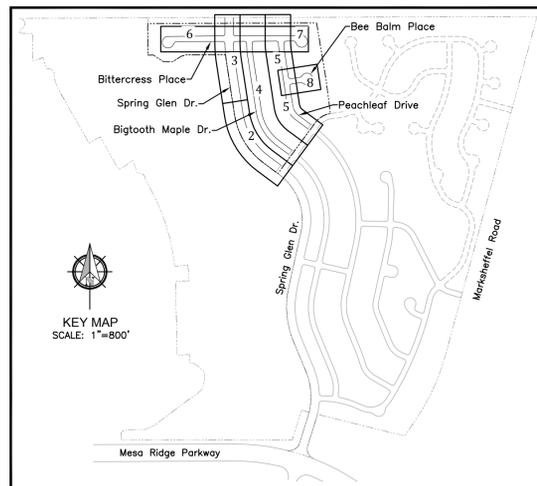
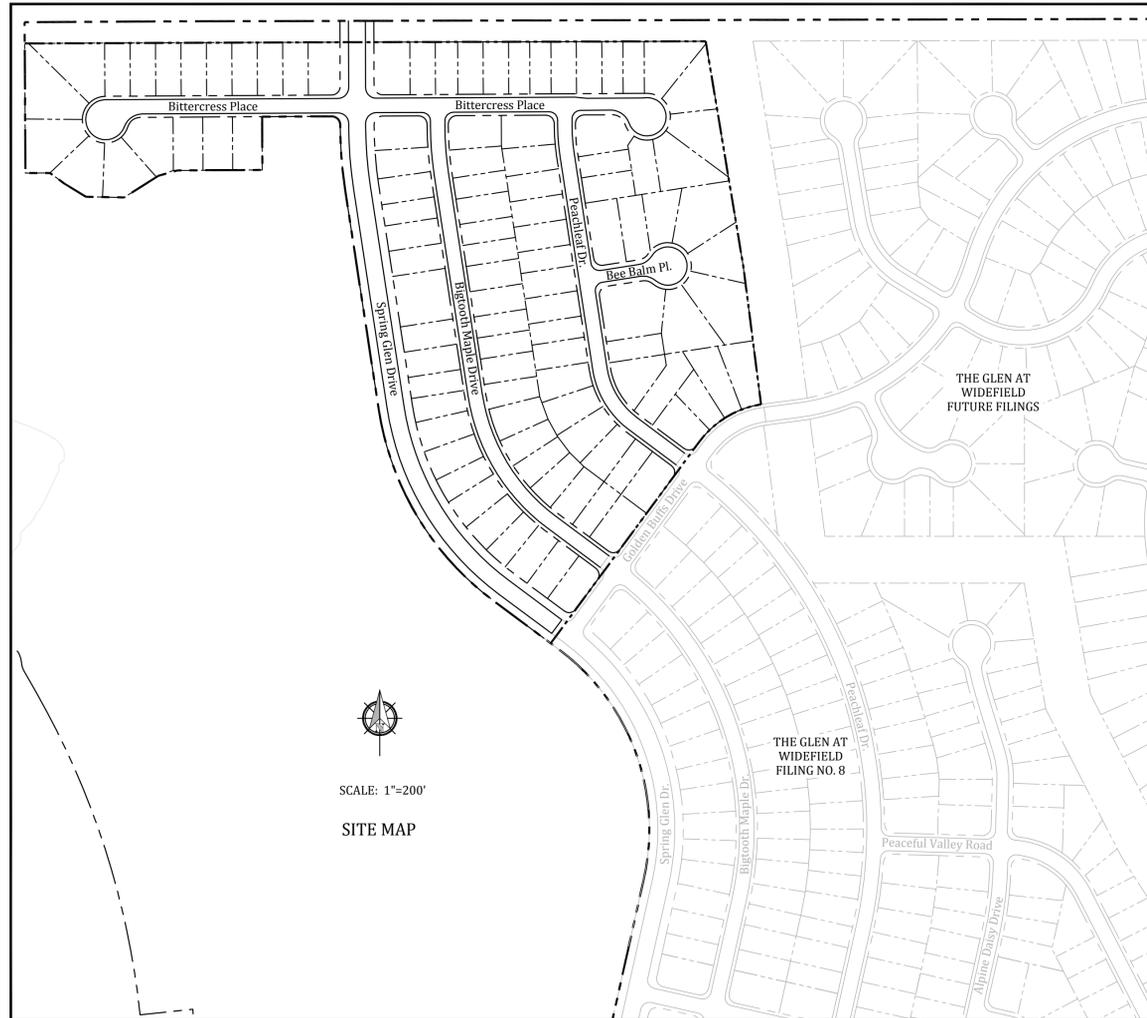
1	Cover Sheet	18	Detention Basin Details
2	Plan and Profile - Spring Glen Drive (30+00 to 43+00)	19	Site Detail Plan -- Site Details
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6	Plan and Profile - Bittercress Place (0+00 to 9+00)		
7	Plan and Profile -- Bittercress Place (9+00 to 14+39)		
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15	Utility Plan -- Water Line Lowering Details		
16	Utility Services Plan		
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# THE GLEN AT WIDEFIELD FILING NO. 9

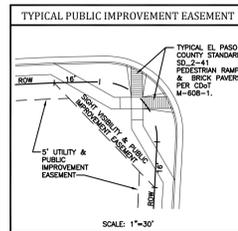
## RESIDENTIAL SUBDIVISION CONSTRUCTION DRAWINGS

### PREPARED FOR WIDEFIELD INVESTMENT GROUP



**ABBREVIATIONS**

ASSY = ASSEMBLY	NTS = NOT TO SCALE
BNDY = BOUNDARY	OD = OUTSIDE DIAMETER
BOP = BOTTOM OF PIPE	PH = POINT OF HORIZONTAL CURVATURE
CL = CENTERLINE	PP = PROPOSED
CRA = CONCRETE REVERSE ANCHOR	PT = POINT OF HORIZONTAL TANGENCY
CTRB = CONCRETE THRUST BLOCK	PVC = POLY VINYL CHLORIDE PIPE
CR = POINT OF CURB RETURN	PVC = POINT OF VERTICAL CURVATURE
DIP = DIAPHRAGM	PVI = POINT OF VERTICAL INTERSECTION
EL = ELEVATION	PVT = POINT OF VERTICAL TANGENCY
ESMT = EASEMENT	RCB = REINFORCED CONCRETE BOX
EX = EXISTING	RCP = REINFORCED CONCRETE PIPE
FC = FACE OF CURB	ROW = RIGHT OF WAY
FES = FLARED END SECTION	RT = RIGHT
FLG = FLANGE	SHT = SHEET
FL = FLOWLINE	SS = SANITARY SEWER
GB = GRADE BREAK	STA = STATION
HP = HIGH POINT	STD = STANDARD
HORIZ = HORIZONTAL	TA = TOP OF ASPHALT
HYDRANT = HYDRANT	TC = TOP OF CURB
I.D. = INSIDE DIAMETER	TP = TOP OF PIPE
LT = LEFT	TP = TOP OF PIPE
LF = LINEAR FEET	VC = VERTICAL CURVE
LP = LOW POINT	VERT = VERTICAL
MAX = MAXIMUM	
MH = MANHOLE	

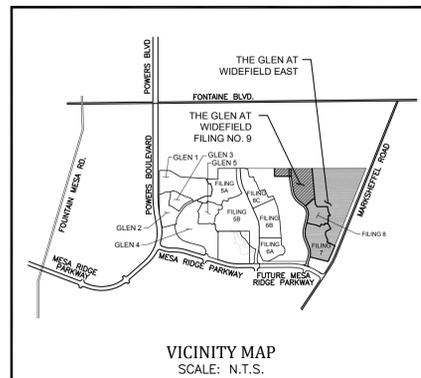


**WIDEFIELD WATER AND SANITATION DISTRICT GENERAL NOTES**

- All utility construction to be conducted in conformance with the current Widefield Water and Sanitation District specifications. Compaction requirements shall be 95% Standard Proctor as determined by ASTM D698, unless otherwise approved by the Widefield Water and Sanitation District or a higher standard is imposed by another agency having right-of-way jurisdiction.
- All materials and workmanship shall be subject to inspection by the Widefield Water and Sanitation District. The Widefield Water and Sanitation District reserves the right to accept or reject any such materials and workmanship that does not conform to its standards and specifications.
- The Developer or his Engineer has located all fire hydrants and future service stubs. Any required realignment, either horizontal or vertical, shall be at the expense of the Developer.
- All ductile iron pipe, to include fittings, valves and fire hydrants will be wrapped with polyethylene tubing, and electrically isolated.
- All ductile iron pipe and fittings shall be double bonded. Specifications for cathodic protection on both Dip mains and PVC mains is specified in the Standards and Specifications.
- PVC main lines shall be installed with coated No. 12 tracer wire.
- The Contractor is required to notify the Widefield Water and Sanitation District (390-7111) a minimum of 48 hours and a maximum of 96 hours prior to the start of construction. The Contractor shall also notify affected utility companies 48 hours prior to construction adjacent to the known utility lines.
- The location of all utilities as shown on these drawings are approximate only. The location of all utilities shall be verified prior to construction by the Contractor.
- The Contractor shall field excavate and verify the vertical and horizontal location of all tie-ins. Contractor shall notify the Widefield Water and Sanitation District and the Engineer of the field verified information prior to construction.
- All bends shall be field staked prior to construction.
- Any water utility material removed and not reused shall be returned to the Widefield Water and Sanitation District if the District so requests.
- The Contractor shall at his expense support and protect all utility mains so that they will function continuously during construction. Should a utility main fail as a result of the Contractor's operation, it will be replaced immediately by either the Contractor or the Widefield Water and Sanitation District at full cost of labor and materials to the Contractor.
- Any pumping or bypass operations must be reviewed and approved prior to execution by both the Widefield Water and Sanitation District and the Engineer.
- Contractor must replace or repair any damage to all surface improvements, including but not limited to fences, curb and gutter and/or asphalt that may be caused during construction.
- All water lines 6" and larger, and all sewer lines 8" and larger, shall have "As-Built" plans prepared and approved prior to final acceptance by the Widefield Water and Sanitation District.
- Prior to construction, a Pre-Construction Conference is required a minimum of 72 hours in advance of commencement of work. To set the Pre-Construction conference, contact Brandon Bernard, Water Superintendent (464-2051) and/or Mark McCormick, Wastewater Superintendent (491-0128) of the Widefield Water and Sanitation District for a time. No Pre-Construction Conference times will be set until 4 sets of signed drawings are received by the Widefield W & S District. Pre-Construction Date /Initials \_\_\_\_\_

**LEGEND**

— STREET R.O.W.	— CURB & GUTTER (CURB SECTION AS SHOWN ON PLANS)
— STREET CENTER LINE	— EXISTING FORCE MAIN
— PROPOSED WATER	— EXISTING WATER
⊕ PROPOSED WATER HYDRANT	⊕ EXISTING WATER HYDRANT
⊙ PROPOSED WATER VALVE	⊙ EXISTING WATER VALVE
⊙ PROPOSED SANITARY MH	⊙ EXISTING SANITARY MH
⊙ PROPOSED SANITARY SEWER	⊙ EXISTING SANITARY MH
⊙ PROPOSED STORM SEWER	⊙ EXISTING STORM SEWER
⊙ PROPOSED STORM INLET	⊙ EXISTING STORM INLET
⊙ PROPOSED STORM MH	⊙ EXISTING STORM MH
⊙ PROPOSED STORM FES	⊙ EXISTING STORM MH
⊙ PROPOSED BOXBASE MH	⊙ EXISTING STORM FES



**STATEMENTS**

**Design Engineer's Statement:**  
These detailed plans and specifications were prepared under my direction and supervision. Said plans and specifications have been prepared according to the criteria established by the County for detailed roadway, drainage, grading and erosion control plans and specifications, and said plans and specifications are in conformity with applicable master drainage plans and master transportation plans. Said plans and specifications meet the purposes for which the particular roadway and drainage facilities are designed and are correct to the best of my knowledge and belief. I accept responsibility for any liability caused by any negligent acts, errors or omissions on my part in preparation of these detailed plans and specifications.

*[Signature]* Date 10/11/17  
Richard N. Wray, P.E. #19310  
For and on behalf of Kiowa Engineering Corp.

**Owner/Developer's Statement:**  
I, the owner/developer have read and will comply with all of the requirements specified in these detailed plans and specifications.

*[Signature]* Date Sept 27th 2018  
J. Ryan Watson, President  
Glen Development Company  
3 Widefield Boulevard  
Colorado Springs, Colorado 80911

**El Paso County:**  
County plan review is provided only for general conformance with County Design Criteria. The County is not responsible for the accuracy and adequacy of the design, dimensions, and/or elevations which shall be confirmed at the job site. The County through the approval of this document assumes no responsibility for completeness and/or accuracy of this document.

Filed in accordance with the requirements of the El Paso County Land Development Code, Drainage Criteria Manual, and Engineering Criteria Manual as amended.

In accordance with ECM Section 1.12, these construction documents will be valid for construction for a period of 2 years from the date signed by the El Paso County Engineer. If construction has not started within these 2 years, the plans will need to be resubmitted for approval, including payment of review fees at the Planning and Community Development Directors discretion.

Jennifer Irvine, P.E.  
County Engineer / ECM Administrator

**UTILITY APPROVALS**

**WATER AND SEWER MAIN EXTENSIONS**  
Any changes or alterations affecting the grade, alignment, elevation and/or depth of cover of any water or sewer mains or other appurtenance shown on this drawing shall be the responsibility of the Owner/Developer. The Owner/Developer shall be responsible for all operational damages and defects in installation and material for mains and services from the date of approval until final acceptance is issued.

Signed *[Signature]* Date Sept 27th 2018

Print Name J. Ryan Watson

DBA: GLEN DEVELOPMENT COMPANY

Address: 3 Widefield Boulevard  
Colorado Springs, CO 80911  
(719) 392-0194

**FIRE AUTHORITY APPROVAL**  
The number of fire hydrants and hydrant locations shown on this water installation plan are correct and adequate to satisfy the fire protection requirements as specified by the Fire District serving the property noted on the plans.

**Security Fire Department**  
Signed *[Signature]* Date 10-3-18  
Security Fire Department

**DISTRICT APPROVALS**  
The Widefield Water and Sanitation District recognizes the design engineer as having responsibility for the design. The Widefield Water and Sanitation District has limited its scope of review accordingly.

**WIDEFIELD WATER AND SANITATION DISTRICT WASTEWATER DESIGN APPROVAL**  
Date: 9/26/2018 By: *[Signature]*

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.

**WIDEFIELD WATER AND SANITATION DISTRICT WATER DESIGN APPROVAL**  
Date: 9/26/2018 By: *[Signature]*

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.

**GOVERNING AGENCIES**

El Paso County Planning & Community Development Department 2880 International Circle Suite 110 Colorado Springs, Colorado (719) 520-6300	Black Hills Energy 18965 Bas Camp Road Unit A7 Monument, Colorado (719) 359-0586
Widefield Water & Sanitation District 37 Widefield Blvd. Colorado Springs, Colorado (719) 390-7111	Mountain View Electric Association 11140 East Woodmen Road Falcon, Colorado (719) 495-2283

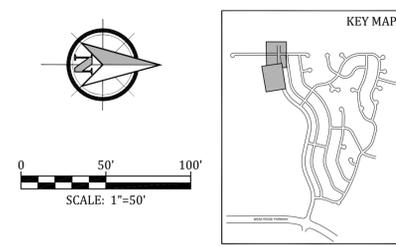
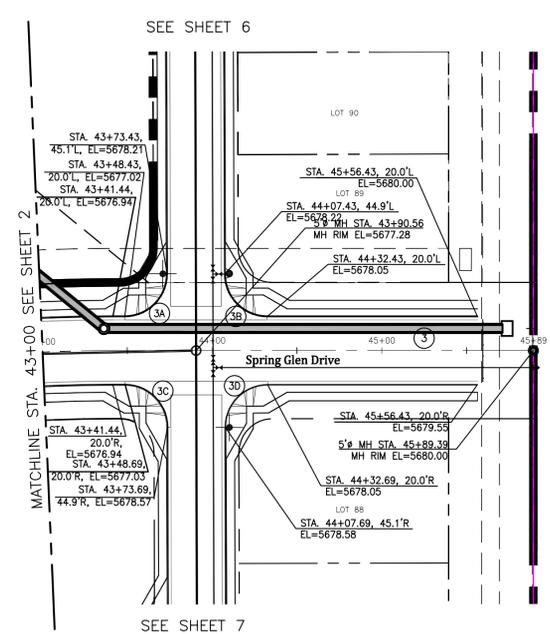
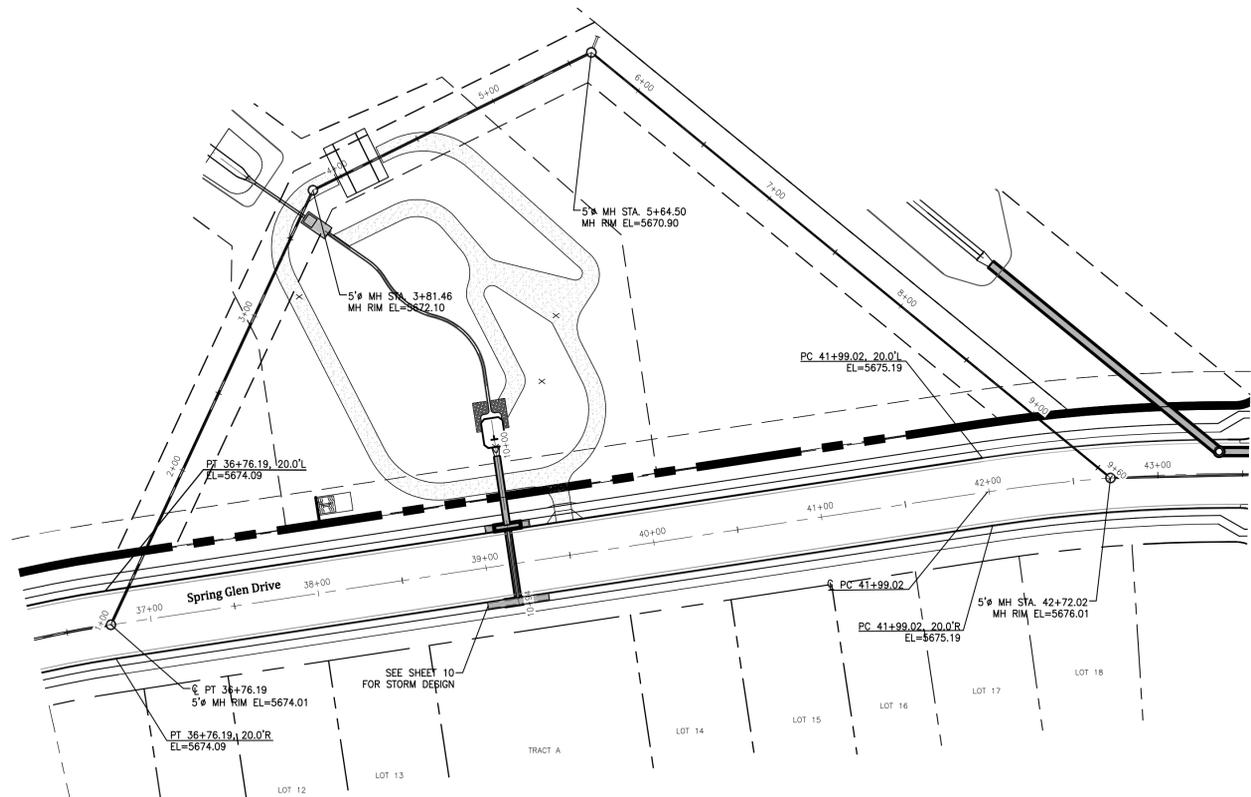
**DEVELOPER:** **PREPARED BY:**

3 WIDEFIELD BOULEVARD  
COLORADO SPRINGS, CO 80911

1604 South 21st Street  
Colorado Springs, Colorado 80904  
(719) 630-7342

Kiowa Project No. 17038  
September 25, 2018

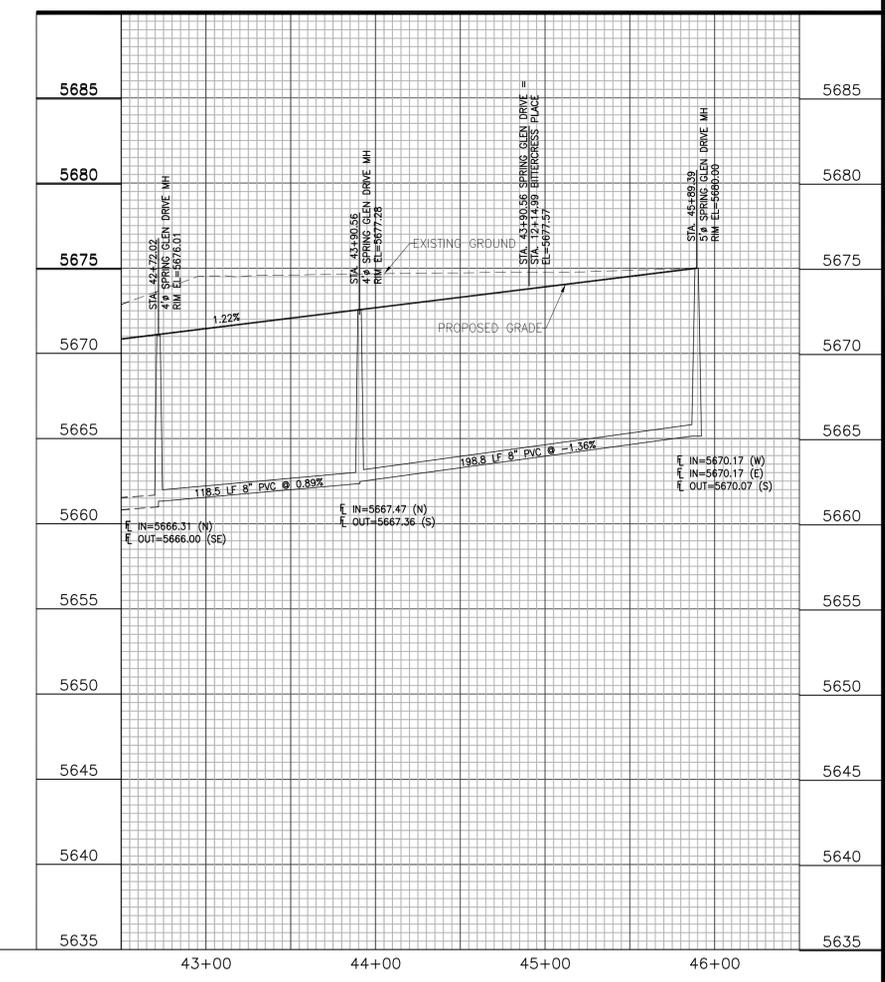
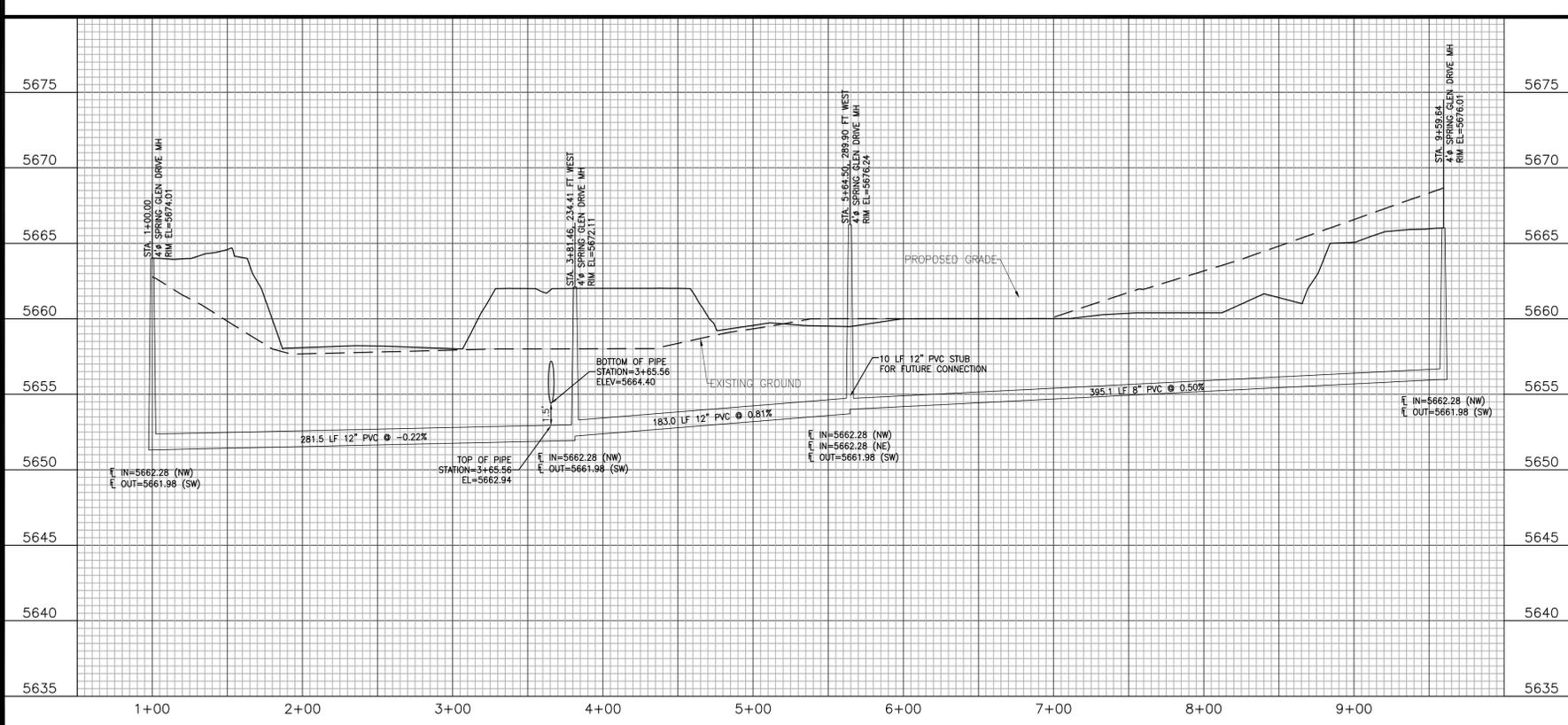




CURVE DATA	
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(3B) $\Delta=90^{\circ}09'59''$ $L=39.34'$ $R=25.00'$	
(3C) $\Delta=90^{\circ}09'59''$ $L=39.34'$ $R=25.00'$	

LINE DATA	
(3) N $00^{\circ}08'39''$ W $L=214.98'$	



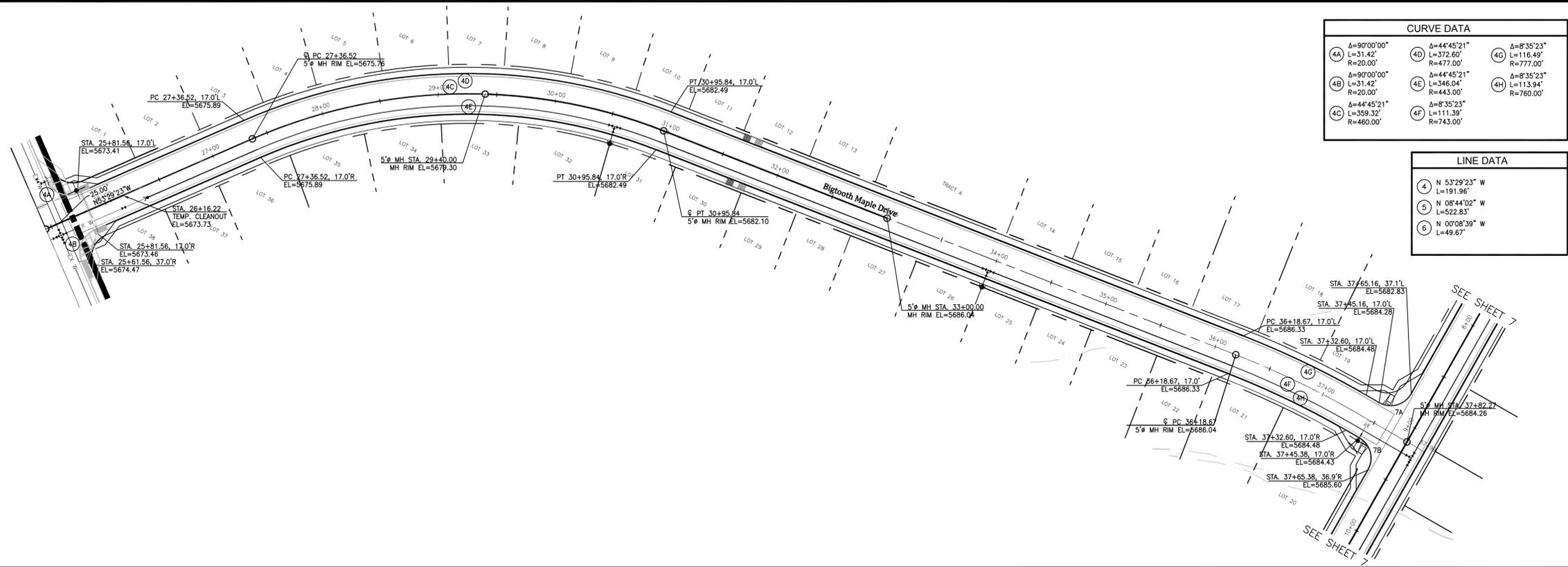
**Kiowa**  
Engineering Corporation  
1604 South 2 1st Street  
Colorado Springs, Colorado 80904  
(719) 630-7342

**W**  
WIDEFIELD  
Investment Group

**GLEN AT WIDEFIELD FILING NO. 9**  
**SPRING GLEN DRIVE (Sta. 43+00 to Sta. 45+89)**  
**PLAN AND PROFILE**  
**EL PASO COUNTY, COLORADO**

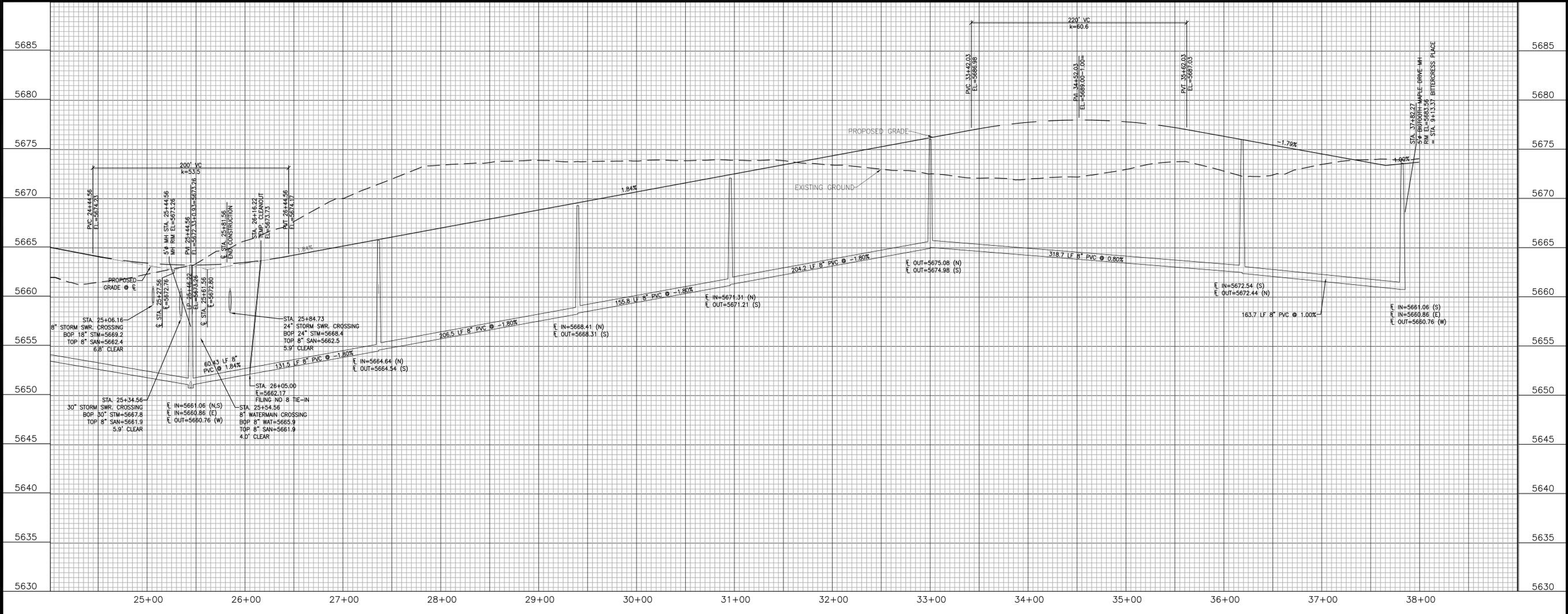
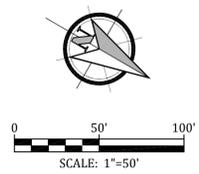
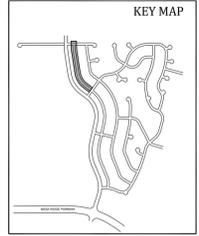
Project No.:	17038
Date:	September 25, 2018
Design:	AWMc
Drawn:	JAK
Check:	AWMc
Revisions:	

SHEET  
**3**  
3 of 20 Sheets



CURVE DATA					
4A	Δ=90°00'00" L=31.42' R=20.00'	4D	Δ=44°45'21" L=372.60' R=477.00'	4G	Δ=8°35'23" L=116.49' R=777.00'
4B	Δ=90°00'00" L=31.42' R=20.00'	4E	Δ=44°45'21" L=346.04' R=443.00'	4H	Δ=8°35'23" L=113.94' R=760.00'
4C	Δ=44°45'21" L=359.32' R=460.00'	4F	Δ=8°35'23" L=111.39' R=743.00'		

LINE DATA	
4	N 53°29'23" W L=191.96'
5	N 08°44'02" W L=522.83'
6	N 00°08'39" W L=49.67'



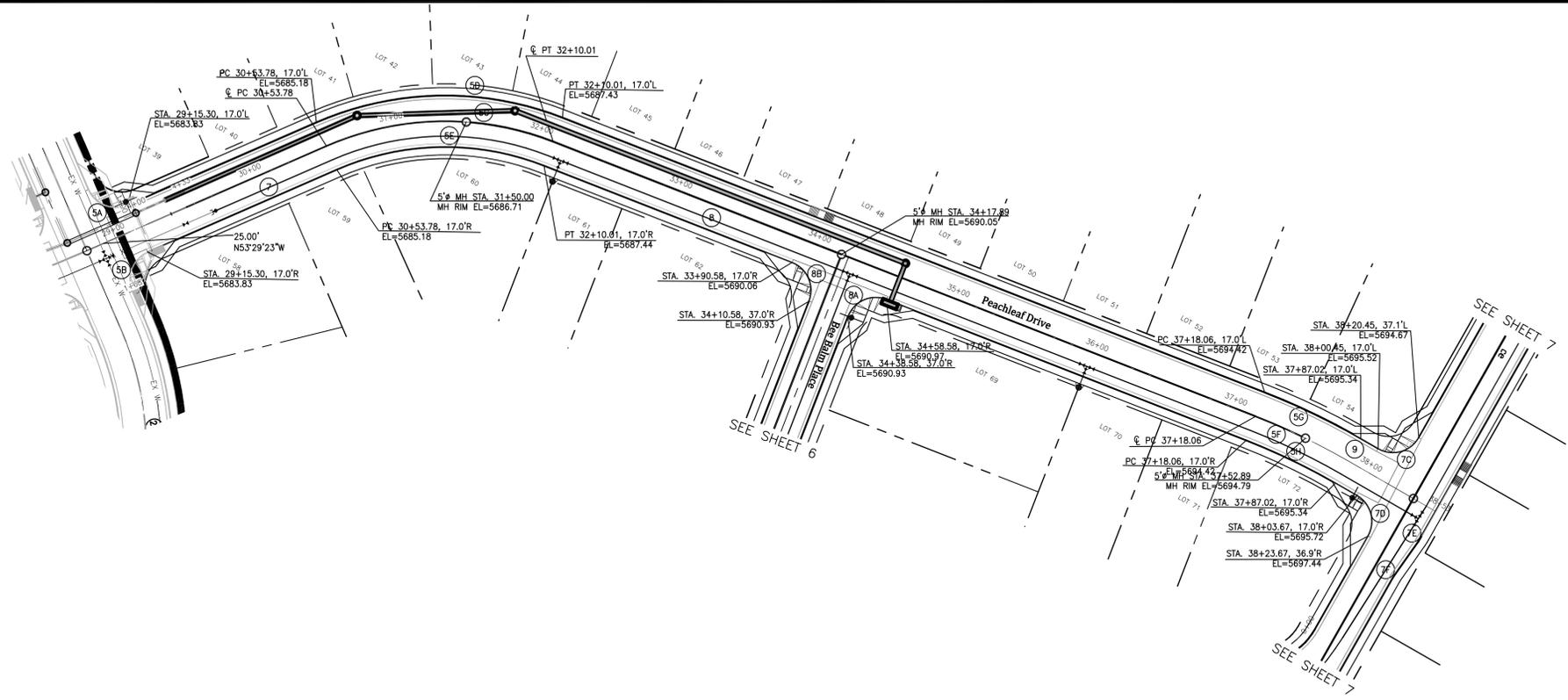
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Engineering Corporation  
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**GLEN AT WIDEFIELD FILING NO. 9**  
**BIGTOOTH MAPLE DRIVE (Sta. 25+50 to Sta. 37+82)**  
PLAN AND PROFILE  
EL PASO COUNTY, COLORADO

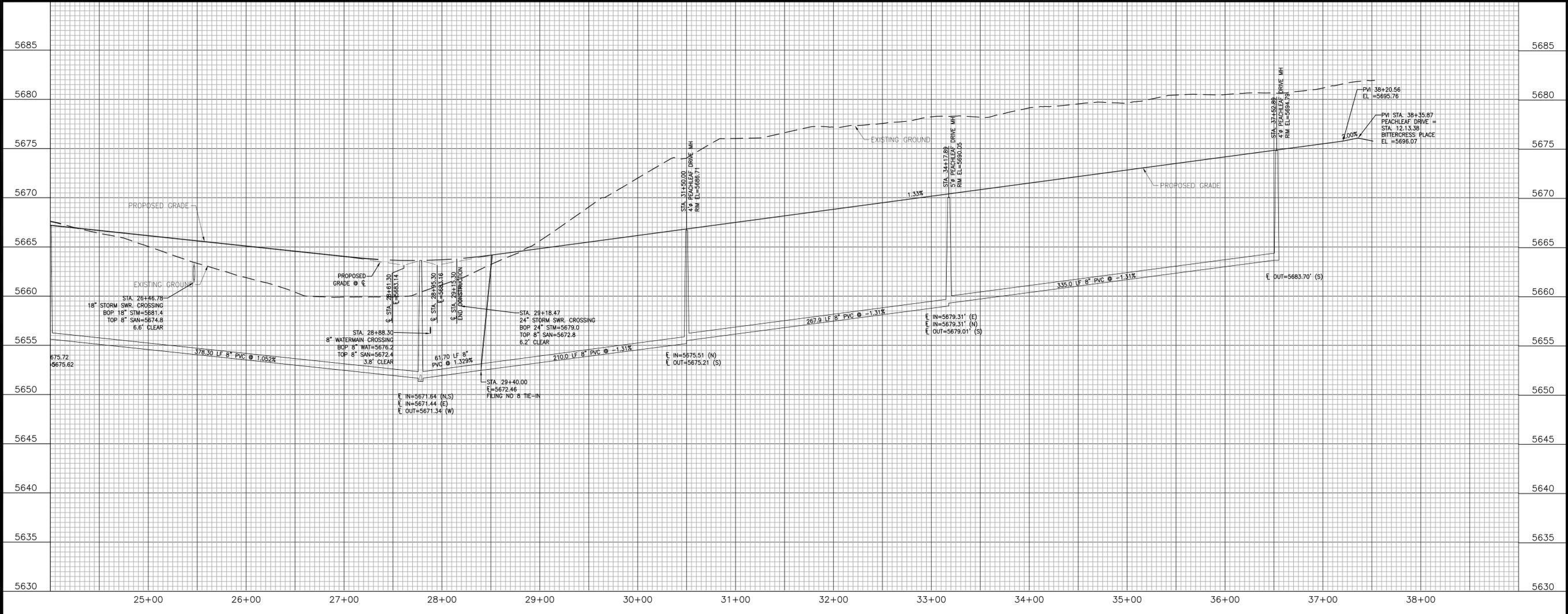
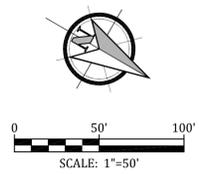
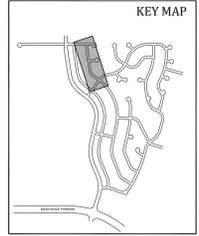
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Date:	September 25, 2018
Design:	AWMc
Drawn:	JAK
Check:	AWMc
Revisions:	

SHEET  
**4**  
4 of 20 Sheets



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5B	Δ=90°00'00" L=31.42' R=20.00'	5E	Δ=44°45'21" L=142.95' R=183.00'	5H	Δ=8°35'23" L=66.41' R=443.00'
5C	Δ=44°45'21" L=156.23' R=200.00'	5F	Δ=8°35'23" L=68.96' R=460.00'		

LINE DATA	
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9	N 00°08'39" W L=50.54'



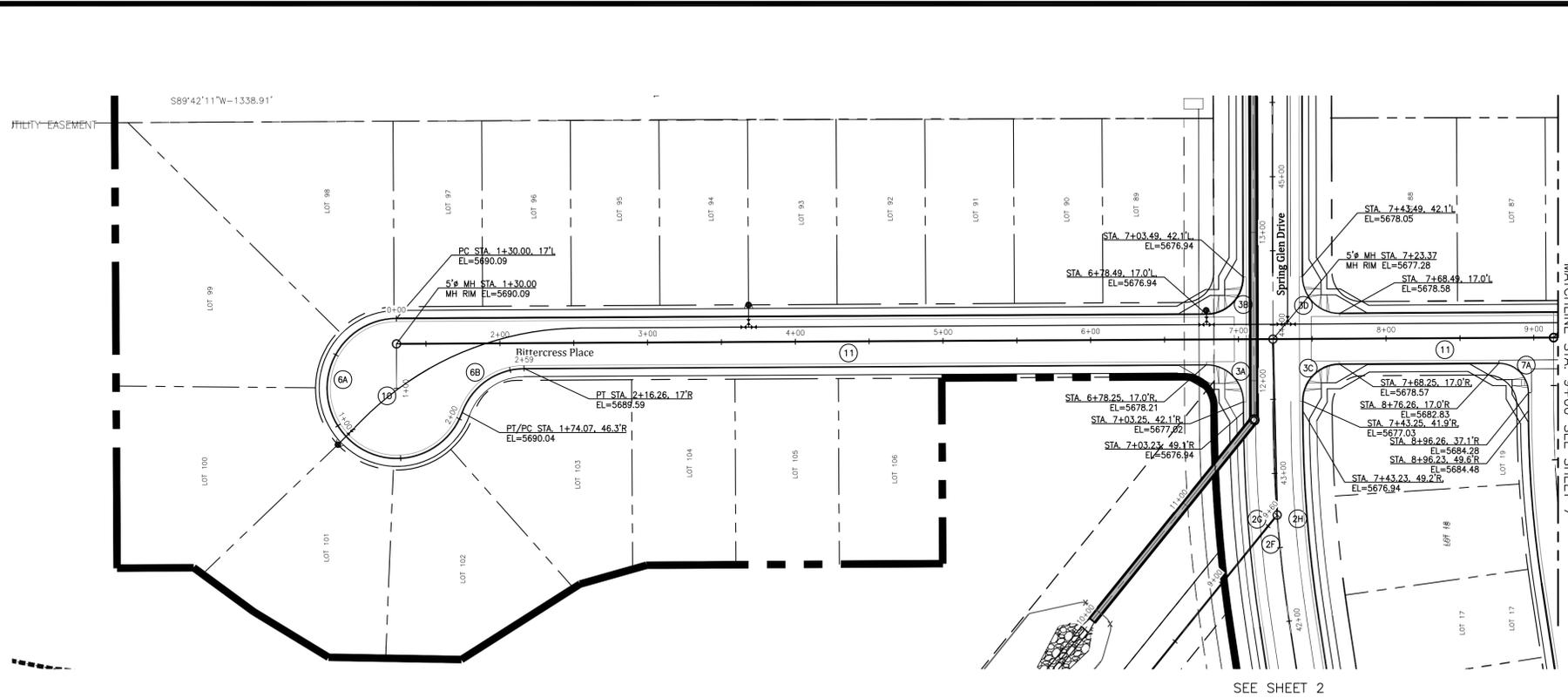
**Kiowa**  
Engineering Corporation  
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Colorado Springs, Colorado 80904  
(719) 630-7342

**W**  
WIDEFIELD  
Investment Group

**GLEN AT WIDEFIELD FILING NO. 9**  
**PEACHLEAF DRIVE (Sta. 25+00 to Sta. 38+36)**  
PLAN AND PROFILE  
EL PASO COUNTY, COLORADO

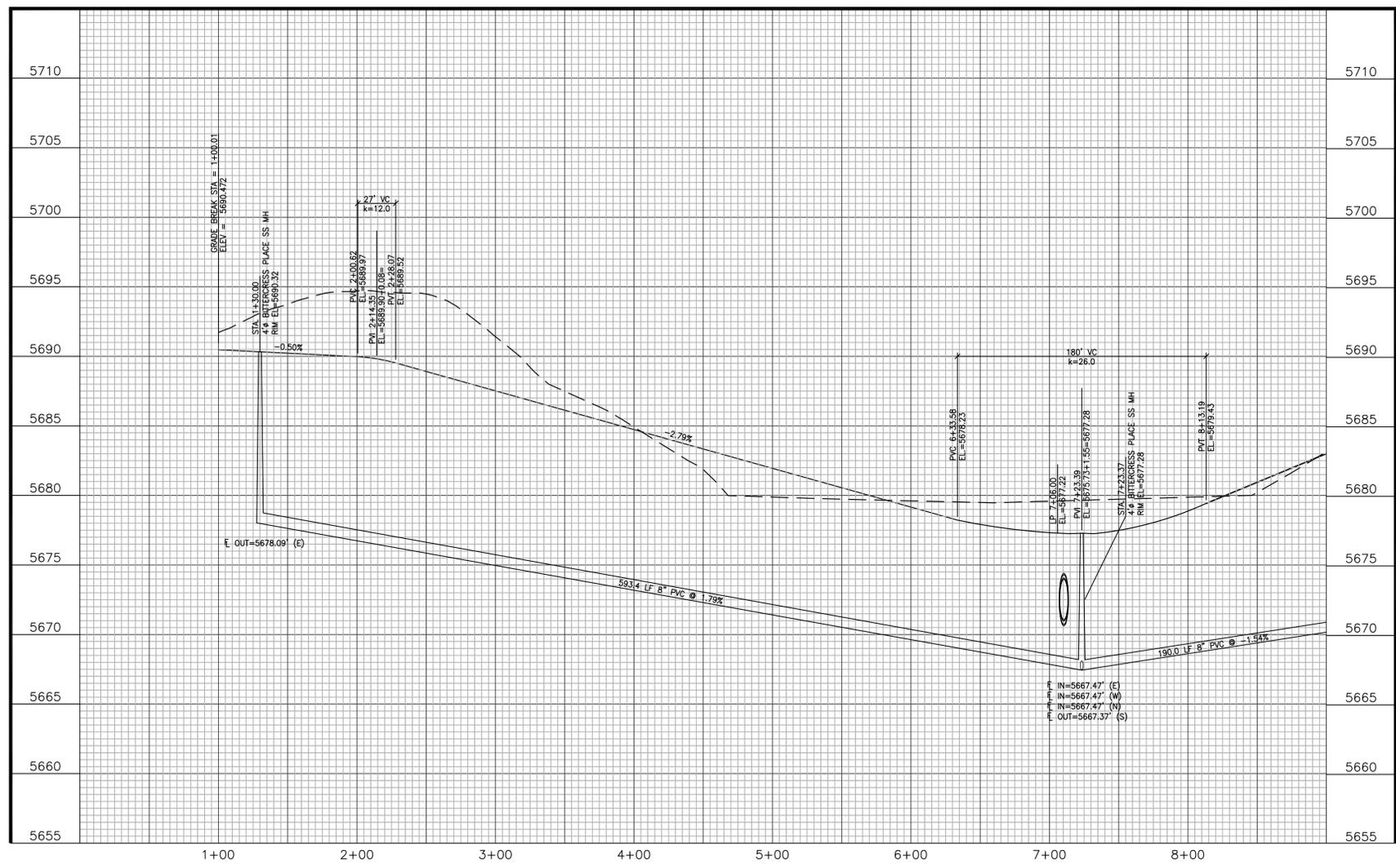
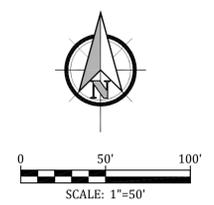
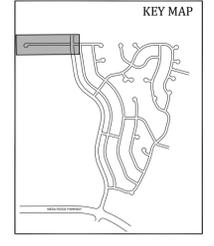
Project No.:	17038
Date:	September 25, 2018
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Revisions:	

SHEET  
**5**  
5 of 20 Sheets

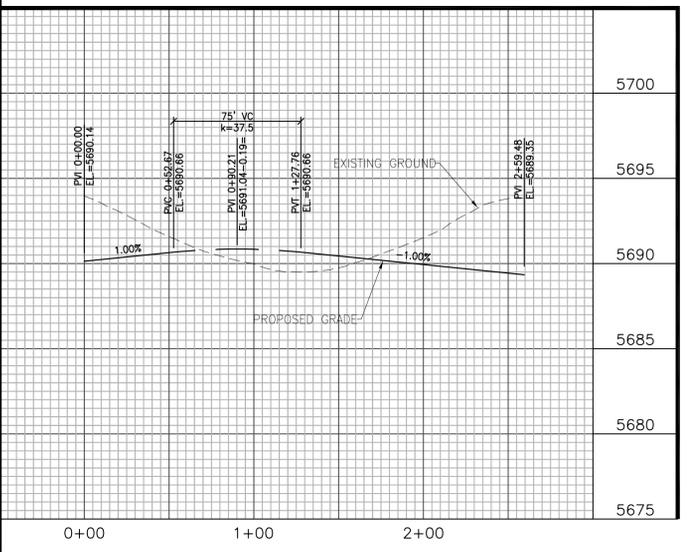


CURVE DATA	
BA	$\Delta=249^{\circ}38'44''$ $L=204.79'$ $R=47.00'$
BB	$\Delta=69^{\circ}38'44''$ $L=54.70'$ $R=45.00'$

LINE DATA	
10	N $00^{\circ}18'38''$ W $L=30.00'$
11	N $89^{\circ}41'22''$ E $L=127.11'$



CUL-DE-SAC PROFILE



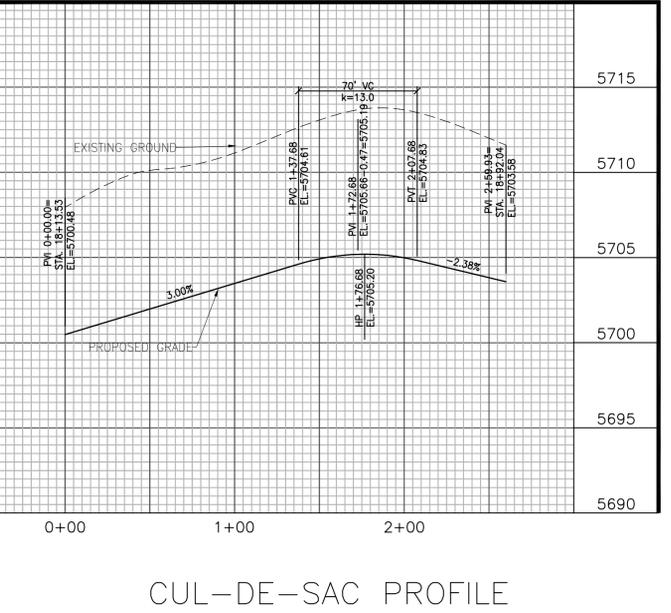
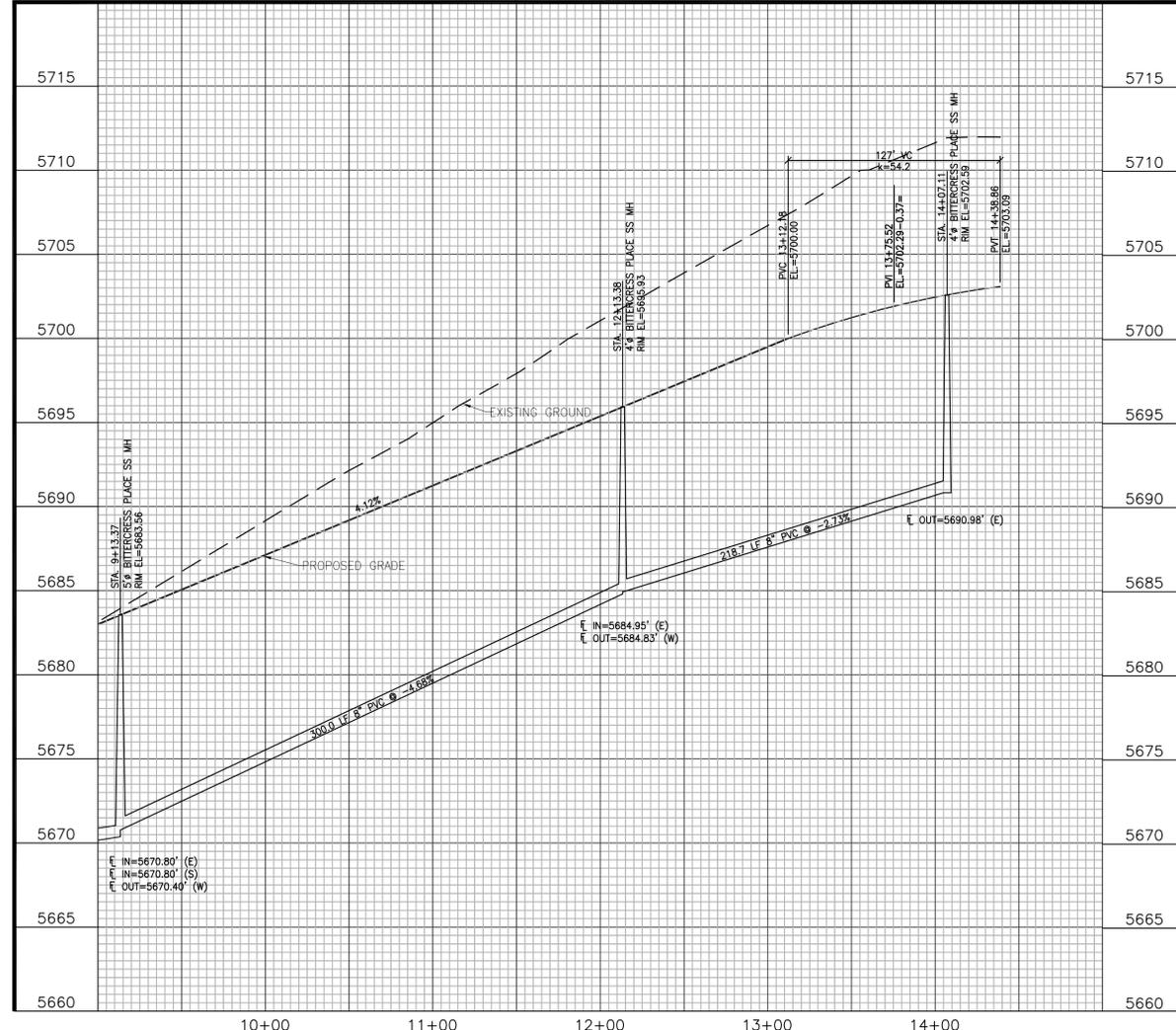
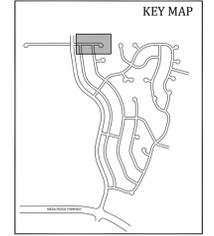
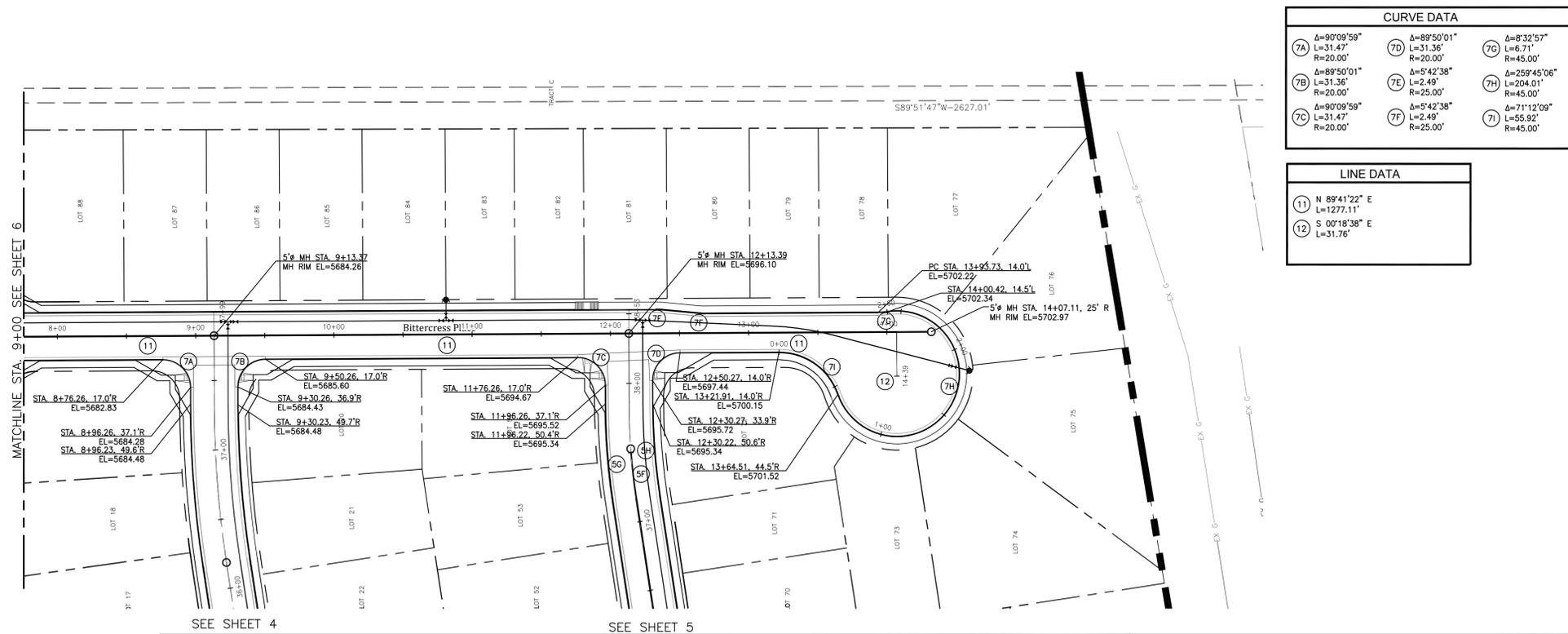
**Kiowa**  
Engineering Corporation  
1604 South 21st Street  
Colorado Springs, Colorado 80904  
(719) 630-7342



**GLEN AT WIDEFIELD FILING NO. 9**  
**BITTERCRESS PLACE (Sta. 0+00 to Sta. 9+00)**  
**PLAN AND PROFILE**  
EL PASO COUNTY, COLORADO

Project No.:	17038
Date:	September 25, 2018
Design:	AWMc
Drawn:	JAK
Check:	AWMc
Revisions:	

SHEET  
**6**  
6 of 20 Sheets



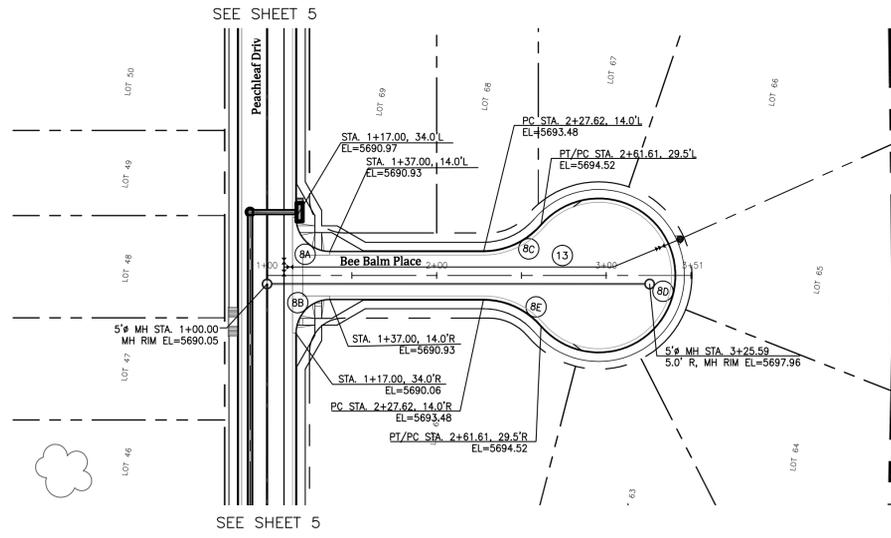
**Kiowa**  
Engineering Corporation  
1604 South 21st Street  
Colorado Springs, Colorado 80904  
(719) 630-7342



**GLEN AT WIDEFIELD FILING NO. 9**  
**BITTERCRESS PLACE (Sta. 9+00 to Sta. 14+39)**  
**PLAN AND PROFILE**  
EL PASO COUNTY, COLORADO

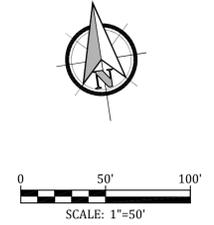
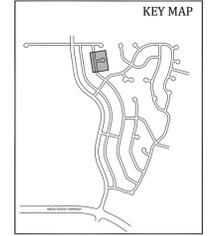
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Revisions:	

SHEET  
**7**  
7 of 20 Sheets



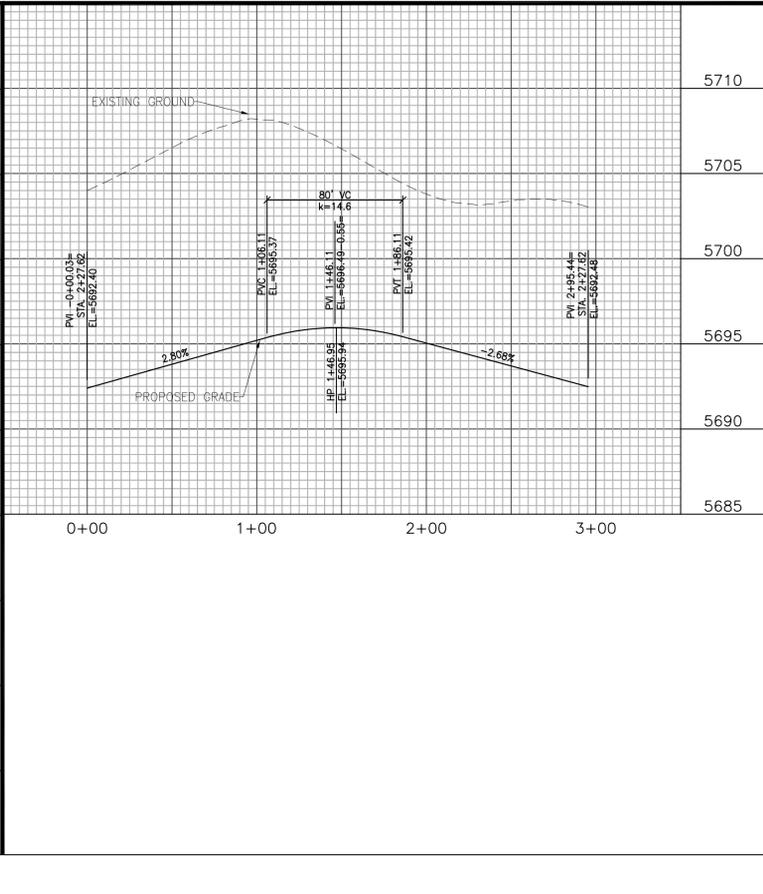
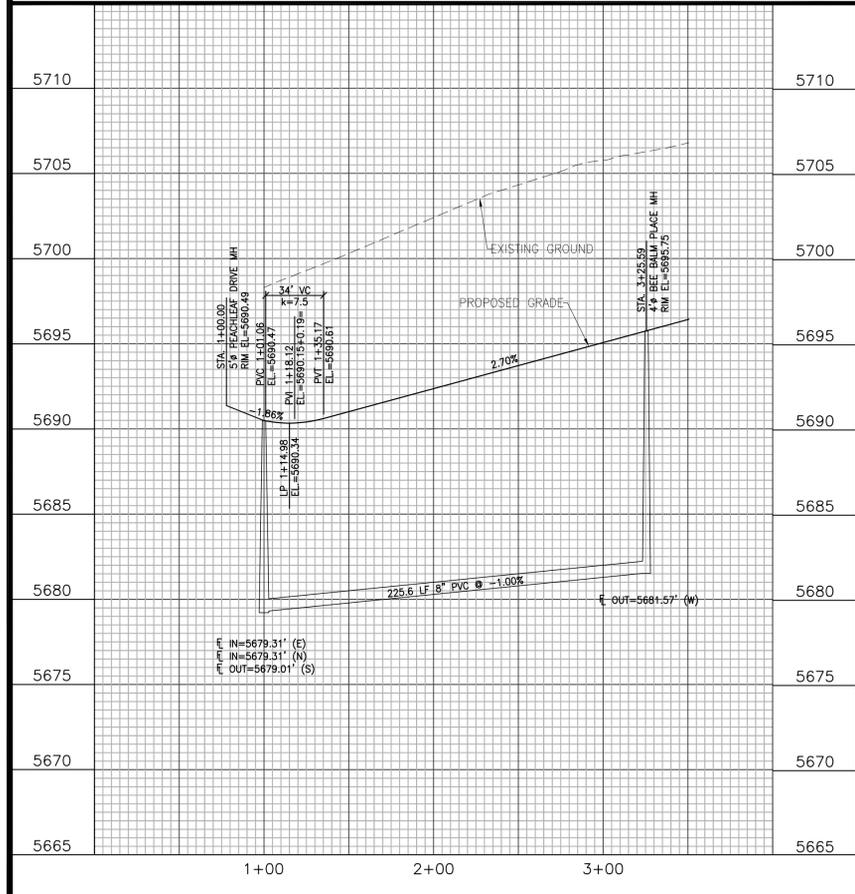
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BB	Δ=27°04'35" L=218.40' R=45.00'
BC	Δ=49°02'18" L=38.51' R=45.00'

LINE DATA	
13	S 81°15'58" E L=250.59'



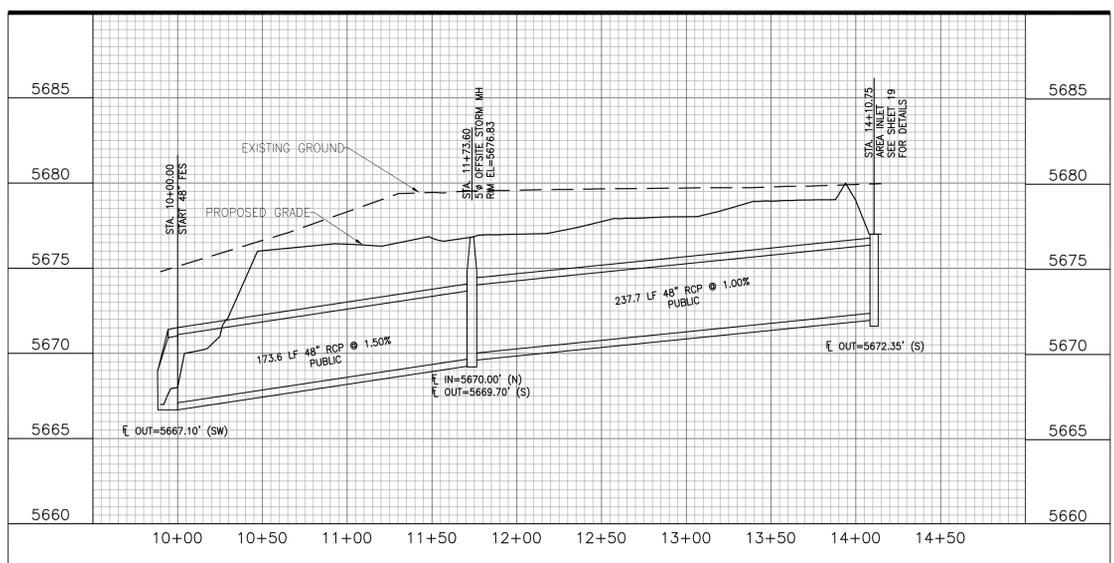
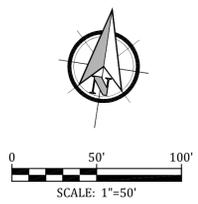
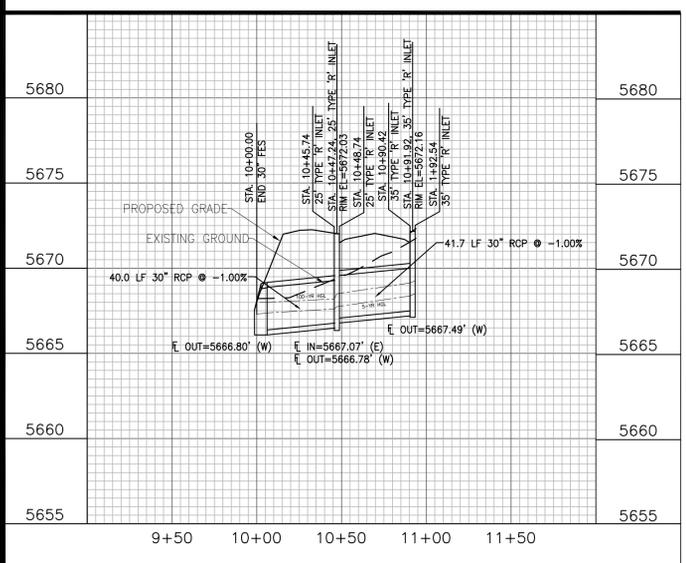
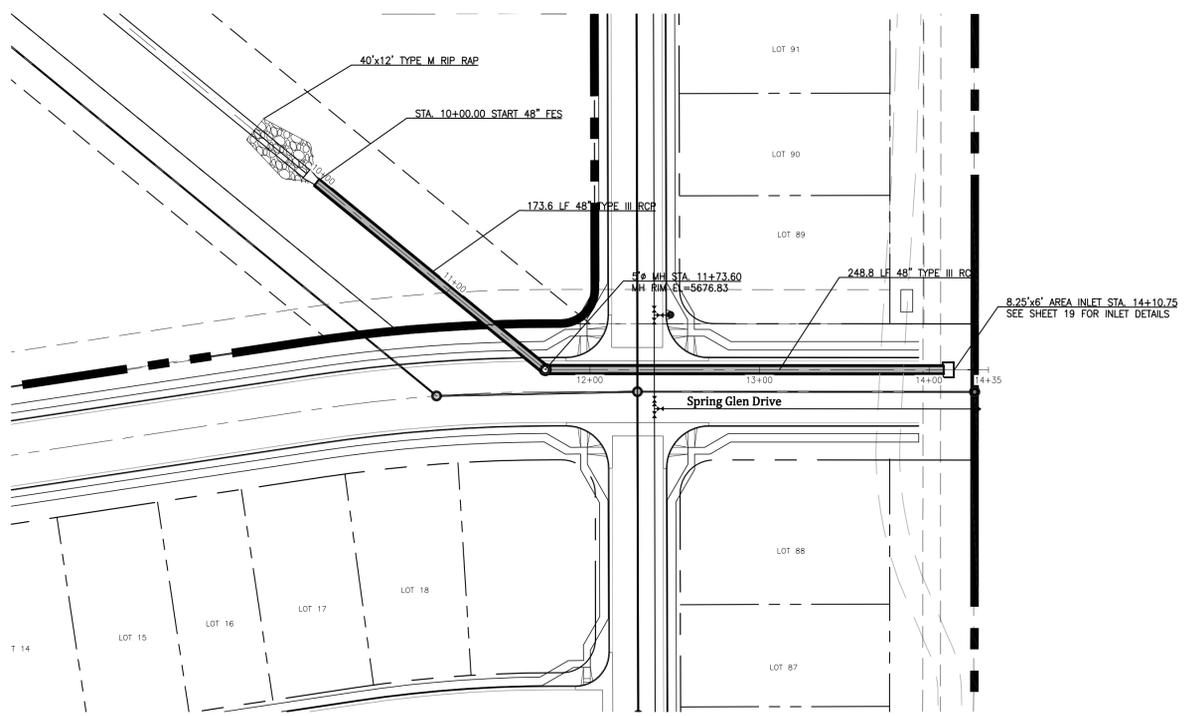
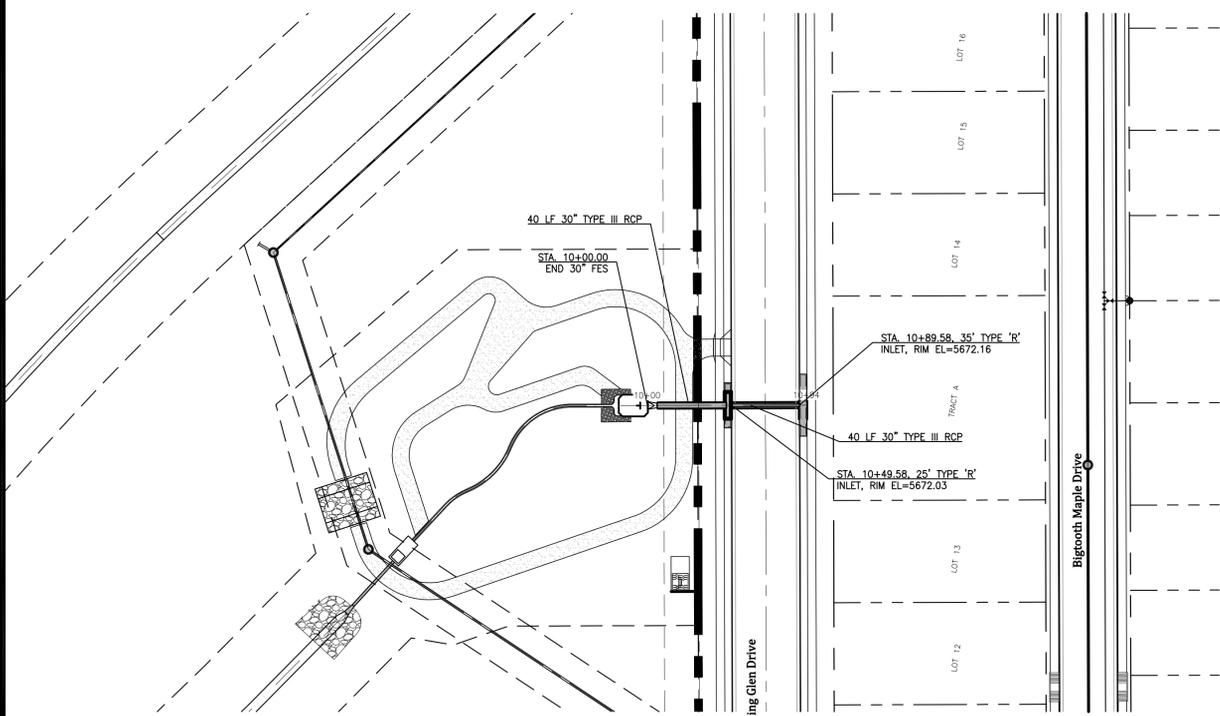
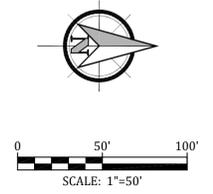
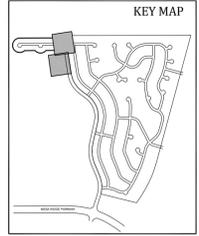
CENTERLINE PROFILE

CUL-DE-SAC PROFILE



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SEED MIX		
AREAS DISTURBED BY THE EARTHWORK ACTIVITIES AND NOT RECEIVING OTHER TREATMENT SHALL BE PERMANENTLY REVEGETATED WITH THE FOLLOWING SEED MIX.		
SPECIES	VARIETY	lbs./acre
SIDEOTS GRAMA	El Reno	3.0
WESTERN WHEAT GRASS	Barton	2.5
SLENDER WHEAT GRASS	Native	2.0
LITTLE BLUESTEM	Pasture	2.0
SAND DROPSSEED	Native	0.5
SWITCH GRASS	Nebraska 28	3.0
WEERING LOVE GRASS	Morpheus	1.0
		14.0 lbs

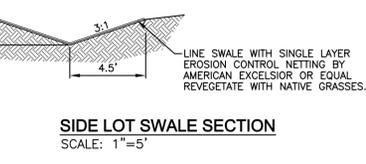
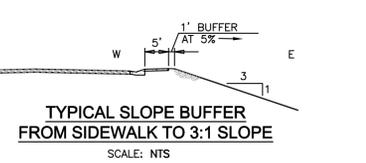
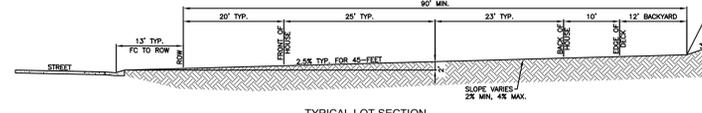
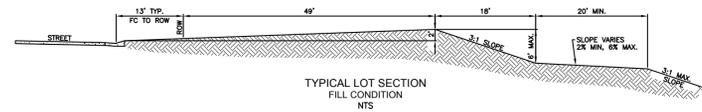
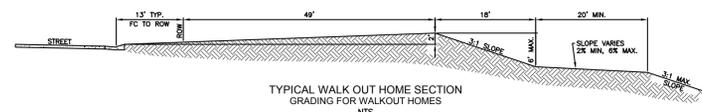
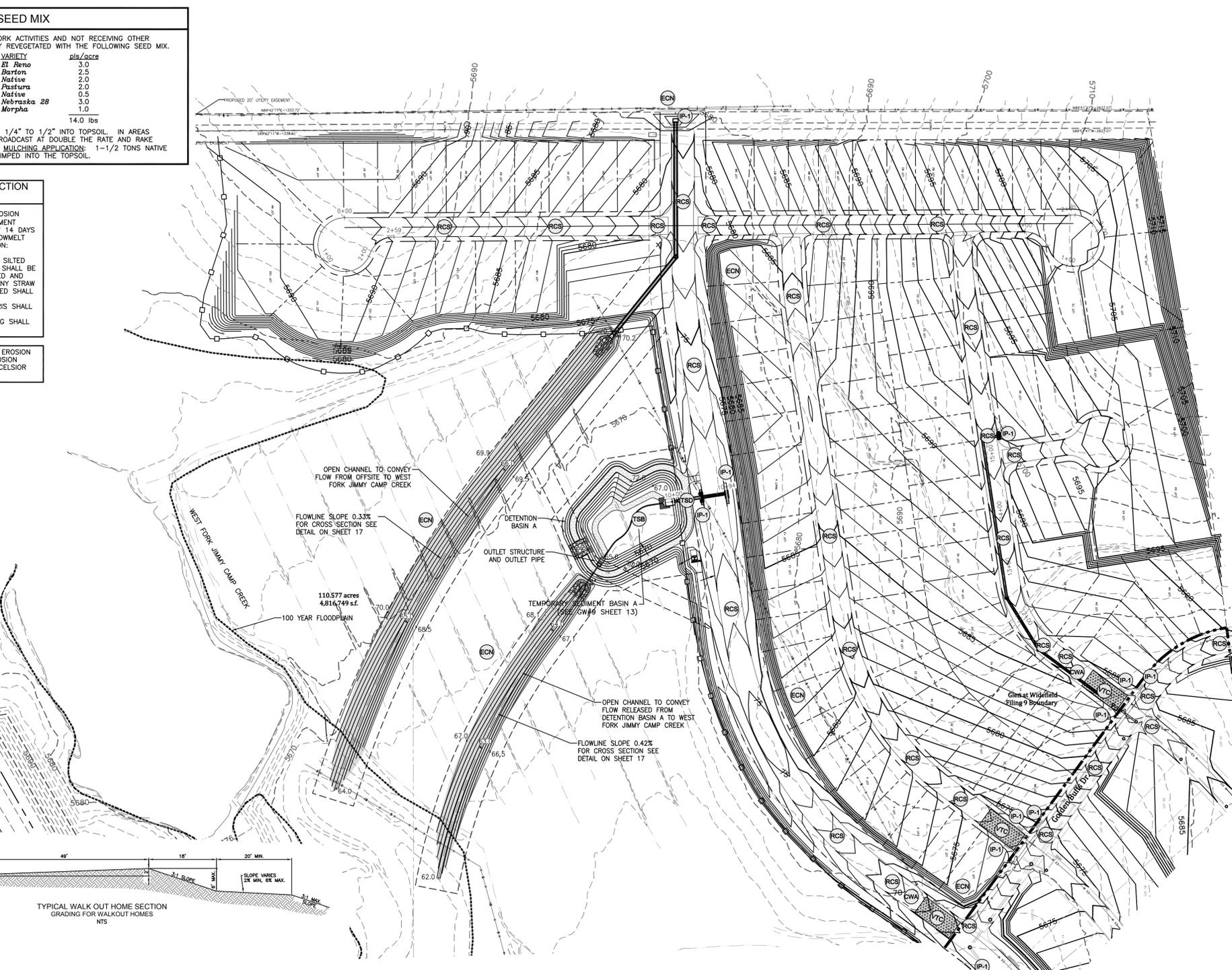
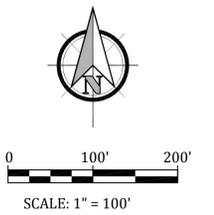
SEEDING APPLICATION: DRILL SEED 1/4" TO 1/2" INTO TOPSOIL. IN AREAS INACCESSIBLE TO A DRILL, HAND BROADCAST AT DOUBLE THE RATE AND RAKE 1/4" TO 1/2" INTO THE TOPSOIL. MULCHING APPLICATION: 1-1/2 TONS NATIVE HAY PER ACRE, MECHANICALLY CRIMPED INTO THE TOPSOIL.

**EROSION CONTROL INSPECTION AND MAINTENANCE**

A THOROUGH INSPECTION OF THE EROSION CONTROL PLAN/STORMWATER MANAGEMENT SYSTEM SHALL BE PERFORMED EVERY 14 DAYS AS WELL AS AFTER ANY RAIN OR SNOWMELT EVENT THAT CAUSES SURFACE EROSION:

- \* WHEN STRAW BALE BARRIERS HAVE SILLED UP TO HALF THEIR HEIGHT, THE SILT SHALL BE REMOVED, FINAL GRADE REESTABLISHED AND SLOPES RESEDED IF NECESSARY. ANY STRAW BALES THAT HAVE SHIFTED OR DECAYED SHALL BE REPAIRED OR REPLACED.
- \* ANY ACCUMULATED TRASH OR DEBRIS SHALL BE REMOVED FROM OUTLETS. AN INSPECTION AND MAINTENANCE LOG SHALL BE KEPT.

SHADED AREA DENOTES PERMANENT EROSION BLANKET. CURLEX HEAVY DUTY EROSION CONTROL BLANKET BY AMERICAN EXCELSIOR OR EQUAL SHALL BE USED.



LEGEND	
	SILT FENCE
	VEHICLE TRACKING CONTROL
	INLET PROTECTION
	TEMPORARY SLOPE DRAIN
	EROSION CONTROL NETTING
	ROUGH-CUT STREET CONTROL
	CONCRETE WASHOUT AREA
	TEMPORARY SEDIMENT BASIN

SEE DETAILS SHEET 15

- PROJECT SPECIFIC GRADING AND EROSION CONTROL NOTES**
- All earthwork required of this construction shall be completed in accordance with all applicable sections of the Project Specifications and Soil Investigation Report (Geotechnical Report).
  - Rubbish including timber, concrete rubble, trees, brush, and asphalt shall not be backfilled adjacent to any of the structures or be in the placement of any unclassified fill. The Contractor shall be responsible for the removal and hauling of such materials to a suitable spoil area. Costs associated with the removal of such materials shall be paid for as documented in the Project Specifications.
  - Excess excavation shall become the property of the Contractor and shall be disposed of at the Contractor's expense. The cost of haulage and spoiling of excess excavated materials shall be paid for as documented in the Project Specifications.
  - Water shall be used as a dust palliative as required and shall be included in the cost for earthwork item(s). No separate payment will be made for dust control associated with the site construction.
  - The road grades shall be cleared of vegetation and the topsoil stockpiled for later use.
  - All grading shall be in conformance with the Geotechnical Report for the area.
  - Placement of fill for roadway embankments shall be completed in conformance with the Geotechnical Report.
  - Grading contours shown on this plan are to final grade.
  - Compaction under filled areas, including roadway and detention basin embankments, shall be 95 percent of the maximum Standard Proctor Density (ASTM D698) at two (2) percent of optimum moisture content.
  - No rubble or debris shall be placed in the backfill under any of the proposed buildings, streets, curb & gutter, sidewalk and drainage structures or within five (5) feet of a building footprint. Properly graded rubble may be used in some locations as specified and verified by the Geotechnical Engineer.
  - Contractor is responsible for reviewing the site prior to bidding to verify site conditions.
  - Contractor is responsible for providing erosion control measures as approved by the El Paso County DSD Engineering Division and as may be required by the El Paso County Inspector.
  - All slopes equal to or greater than 3:1 shall require anchored soil retention blanket (SRB), Geocor 700 or equal.
  - The Developer is responsible for maintaining erosion control measures until a mature stage of vegetation is established.
  - All soils used for fill must be approved by a representative of the Geotechnical Engineer.
  - All natural ground to receive fill must be properly scarified, watered and compacted prior to placing fill.
  - The Contractor is solely responsible for the design, maintenance and operation of any required dewatering system. The Contractor shall perform such independent investigation as he deems necessary to satisfy himself as to the subsurface groundwater conditions and unstable soil conditions to be encountered throughout the construction. Contractor shall coordinate the dewatering system with El Paso County when associated with public facilities.
  - No fill shall be placed, spread or rolled while it is frozen, thawing or during unfavorable weather conditions. When the work is interrupted by heavy rain, fill operations shall not be resumed until a representative of the Geotechnical Engineer indicates that the moisture content and density of the previously placed fill are as specified. Fill surfaces may be scarified and recompact after rainfall if necessary, to obtain proper moisture density relation.
  - Additional erosion control structures and/or grading may be required at the time of construction.
  - Sediment removal for erosion control facilities shall be performed continuously for proper function.
  - Base mapping was provided by Pinnacle Land Surveying. The date of the last survey update was January 2014.
  - Proposed Construction Schedule:  
Begin Construction: Autumn 2015  
End Construction: Autumn 2018  
Total Site Area = 292.29 Acres
  - Area to be disturbed = 172.8 Acres (est.)  
Existing 100-year runoff coefficient = 0.50  
Proposed 100-year runoff coefficient = 0.51  
Existing Hydrologic Soil Groups: B & C  
(B--Nelson-Tassel fine sandy loam; B--Stoneham sandy loam; C--Nunn clay loam)
  - Site is currently undeveloped and covered with native grasses on moderate to steep slopes (3%-18%).
  - Site is located in the West Fork Jimmy Camp Creek Drainage Basin.

**OPINION OF COST FOR EROSION CONTROL REQUIREMENTS**  
Additional Erosion Control for Glen at Widefield Filing No. 9

ITEM	QUANTITY	UNITS	PRICE	AMOUNT
PERMANENT SEEDING	0.1	AC	\$582	\$58.20
PERMANENT E.C. BLANKET	7,655	SY	\$6	\$45,930.00
VEHICLE TRACKING CONTROL	3	EA	\$1,625	\$4,875.00
INLET PROTECTION	11	EA	\$153	\$1,683.00
CONCRETE WASHOUT BASIN	2	EA	\$776	\$1,552.00
ROUGH CUT STREET CONTROL	670	LF	\$2	\$1,340.00
SILT FENCING	2,450	LF	\$2.50	\$6,125.00
			TOTAL	\$61,563.20

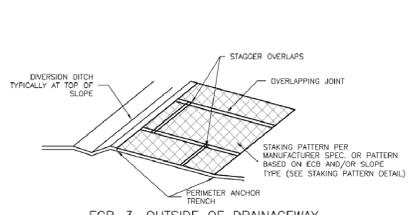
TYPICAL LOT CROSS SECTIONS

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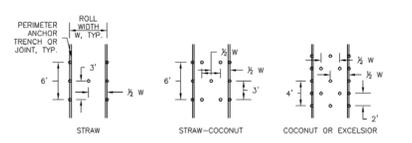
**TABLE ECB-1. ECB MATERIAL SPECIFICATIONS**

TYPE	COCONUT CONTENT	STRAW CONTENT	EXCORSIOR CONTENT	RECOMMENDED NETTING**
STRAW*	—	100%	—	DOUBLE/NATURAL
COCONUT	30% MIN	70% MAX	—	DOUBLE/NATURAL
EXCORSIOR	—	—	100%	DOUBLE/NATURAL

**STAKING PATTERNS BY SLOPE**



**ECB-3. OUTSIDE OF DRAINAGEWAY**



**STAKING PATTERNS BY ECB TYPE**

**EROSION CONTROL BLANKET (ECB)**  
NTS

**ROUGH-CUT STREET CONTROL (RCS)**  
NTS

**EROSION CONTROL BLANKET INSTALLATION NOTES**

- SEE PLAN VIEW FOR:
  - LOCATION OF ECB.
  - TYPE OF ECB (STRAW, STRAW-COCONUT, COCONUT, OR EXCORSIOR).
  - AREA A, IN SQUARE YARDS OF EACH TYPE OF ECB.
- 100% NATURAL AND BIODEGRADABLE MATERIALS ARE PREFERRED FOR RECPA, ALTHOUGH SOME JURISDICTIONS MAY ALLOW OTHER MATERIALS IN SOME APPLICATIONS.
- IN AREAS WHERE ECBs ARE SHOWN ON THE PLANS, THE PERMITEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING AND MULCHING. SUBGRADE SHALL BE SMOOTH AND MOST PRIOR TO ECB INSTALLATION AND THE ECB SHALL BE IN FULL CONTACT WITH SUBGRADE. NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.
- PERIMETER ANCHOR TRENCH SHALL BE USED ALONG THE OUTSIDE PERIMETER OF ALL BLANKET AREAS.
- JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL ECBs EXCEPT STRAW WHICH MAY USE AN OVERLAPPING JOINT.
- INTERMEDIATE ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER FOR COCONUT AND EXCORSIOR ECBs.
- OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER FOR ECBs ON SLOPES.
- MATERIAL SPECIFICATIONS OF ECBs SHALL CONFORM TO TABLE ECB-1.
- ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING ECBs SHALL BE RESEEDED AND MULCHED.

**EROSION CONTROL BLANKET MAINTENANCE NOTES**

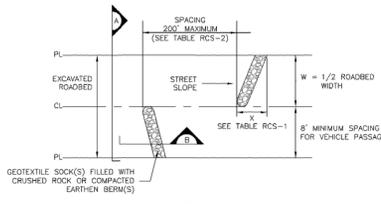
- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- ECBs SHALL BE LEFT IN PLACE TO EVENTUALLY BIODEGRADE, UNLESS REQUESTED TO BE REMOVED BY THE LOCAL JURISDICTION.
- ANY ECB PULLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE REPAIRED OR REINSTALLED. ANY SUBGRADE AREAS BELOW THE GEOTEXTILE THAT HAVE ERODED TO CREATE A VOID UNDER THE BLANKET, OR THAT REMAIN COVERED BY GRASS SHALL BE REPAIRED, RESEEDED AND MULCHED AND THE ECB REINSTALLED.

**ROUGH CUT STREET CONTROL INSTALLATION NOTES**

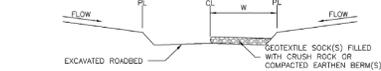
- SEE PLAN VIEW FOR:
  - LOCATION OF ROUGH CUT STREET CONTROL MEASURES.
- ROUGH CUT STREET CONTROL SHALL BE INSTALLED AFTER A ROAD HAS BEEN CUT IN, AND WILL NOT BE PAVED FOR MORE THAN 14 DAYS OR FOR TEMPORARY CONSTRUCTION ROADS THAT HAVE NOT RECEIVED ROAD BASE.

**ROUGH CUT STREET CONTROL INSPECTION AND MAINTENANCE NOTES**

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.



**ROUGH CUT STREET CONTROL PLAN**



**SECTION A**

**SECTION B**

**TABLE RCS-1**

W (FT) X (FT)	SPACING (FT)
20-30	5
31-40	7
41-50	9
51-60	10.5
61-70	12

**TABLE RCS-2**

LONGITUDINAL STREET SLOPE (%)	SPACING (FT)
<2	NOT TYPICALLY NEEDED
2	200
3	200
4	150
5	100
6	50
7	25
8	25

**CONCRETE WASHOUT AREA (CWA)**  
EPC STD SD\_3-84  
NTS



**CONCRETE WASHOUT AREA**



**SECTION A-A**

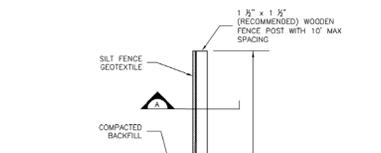
- NOTES**
- MATERIAL, EXCAVATION AND RESTORATION ARE INCLUDED IN THE COST OF THE CONCRETE WASHOUT AREA.
  - EROSION BARRIERS MAY BE USED AS AN ALTERNATE FOR THE BERM.

**SILT FENCE INSTALLATION NOTES**

- SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2-5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.
- A UNIFORM 6" X 4" ANCHOR TRENCH SHALL BE EXCAVATED USING FRENCHER OR SILT FENCE INSTALLATION DEVICE. NO ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.
- COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.
- SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.
- SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING "1" HEAVY DUTY STAPLES OR NAILS WITH "1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.
- AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "J-HOOK." THE "J-HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' - 20').
- SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

**SILT FENCE MAINTENANCE NOTES**

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP. TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".
- REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.
- SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.
- WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.



**SILT FENCE**

**TERMINATION OF RIPRAP LINED SLOPE DRAIN**



**IP-1. BLOCK AND ROCK SOCK SUMP OR ON GRADE INLET PROTECTION**

**TEMPORARY SLOPE DRAIN PROFILE**



**SECTION A**

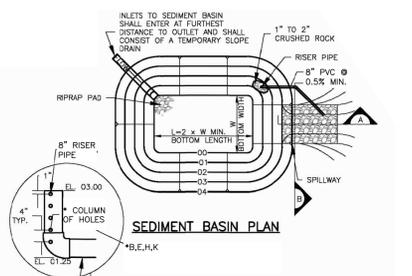
**SILT FENCE DETAIL**  
NTS



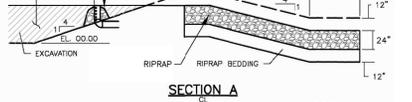
**TEMPORARY SEDIMENT BASIN (TSB)**  
NTS

**SEDIMENT BASIN "A"**

- 0.38 ac-ft REQUIRED TO SPILLWAY CREST.
- 8" PVC PERFORATED RISER PIPE, PERFORATIONS VERTICALLY SPACED 4" APART, 1" COLUMN OF 5 3/4" HOLES.
- 8" LONG SPILLWAY, 1" DEPTH, LINED WITH 24" THICK TYPE "W" RIPRAP TO TOE OF SLOPE.



**SEDIMENT BASIN PLAN**



**SECTION A**

**SEDIMENT BASIN INSTALLATION NOTES**

- SEE PLAN VIEW FOR:
  - LOCATION OF SEDIMENT BASIN.
  - TYPE OF BASIN (STANDARD BASIN OR NONSTANDARD BASIN).
  - FOR STANDARD BASIN, BOTTOM WIDTH W, CREST LENGTH CL, AND HOLE DIAMETER, HD.
  - FOR NONSTANDARD BASIN, SEE CONSTRUCTION DRAWINGS FOR DESIGN OF BASIN INCLUDING RISER HEIGHT H, NUMBER OF COLUMNS N, HOLE DIAMETER HD AND PIPE DIAMETER D.
- FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.
- SEDIMENT BASINS SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITY THAT RELIES ON ON BASINS AS A STORMWATER CONTROL.
- EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS OR CONCRETE GREATER THAN 3 INCHES AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PASSING THE NO. 200 SIEVE.
- EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D688.
- PIPE SCH 40 OR GREATER SHALL BE USED.
- THE DETAILS SHOWN ON THESE SHEETS PERTAIN TO STANDARD SEDIMENT BASINS FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASINS THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES.

**ROUGH CUT STREET CONTROL INSTALLATION NOTES**

- SEE PLAN VIEW FOR:
  - LOCATION OF ROUGH CUT STREET CONTROL MEASURES.
- ROUGH CUT STREET CONTROL SHALL BE INSTALLED AFTER A ROAD HAS BEEN CUT IN, AND WILL NOT BE PAVED FOR MORE THAN 14 DAYS OR FOR TEMPORARY CONSTRUCTION ROADS THAT HAVE NOT RECEIVED ROAD BASE.

**ROUGH CUT STREET CONTROL INSPECTION AND MAINTENANCE NOTES**

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

(DETAILS ADAPTED FROM AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

**GENERAL INLET PROTECTION INSTALLATION NOTES**

- SEE PLAN VIEW FOR:
  - LOCATION OF INLET PROTECTION.
  - TYPE OF INLET PROTECTION (IP-1, IP-2, IP-3, IP-4, IP-5, IP-6).
- INLET PROTECTION SHALL BE INSTALLED PROMPTLY AFTER INLET CONSTRUCTION OR PAVING IS COMPLETE (TYPICALLY WITHIN 48 HOURS). IF A MANUAL/RUNOFF EVENT IS FORECAST, INSTALL INLET PROTECTION PRIOR TO ONSET OF EVENT.
- DIFFERENT JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM USPCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN SUCH VARIANCES ARE NOTED.

**INLET PROTECTION MAINTENANCE NOTES**

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- SEDIMENT ACCUMULATED UPSTREAM OF INLET PROTECTION SHALL BE REMOVED AS NEEDED TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN STORAGE VOLUME REACHES 50% OF CAPACITY. A DEPTH OF 6" WHEN SILT FENCE IS USED, OR 1/4 OF THE HEIGHT FOR STRAW BALES.
- INLET PROTECTION IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED, UNLESS THE LOCAL JURISDICTION APPROVES EARLIER REMOVAL OF INLET PROTECTION IN STREETS.
- WHEN INLET PROTECTION AT AREA INLETS IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED, OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.



**IP-1. BLOCK AND CURB SOCK INLET PROTECTION INSTALLATION NOTES**

- SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
- CONCRETE "CONDS" BLOCKS SHALL BE LAD ON THEIR SIDES AROUND THE INLET IN A SINGLE ROW, ABUTTING ONE ANOTHER WITH THE OPEN END FACING AWAY FROM THE CURB.
- GRAVEL BAGS SHALL BE PLACED AROUND CONCRETE BLOCKS, CLOSELY ABUTTING ONE ANOTHER AND JOINED TOGETHER IN ACCORDANCE WITH ROCK SOCK DESIGN DETAIL.

**SECTION A**

**TEMPORARY SLOPE DRAIN (TSD)**  
NTS

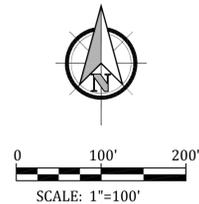


**SECTION A**



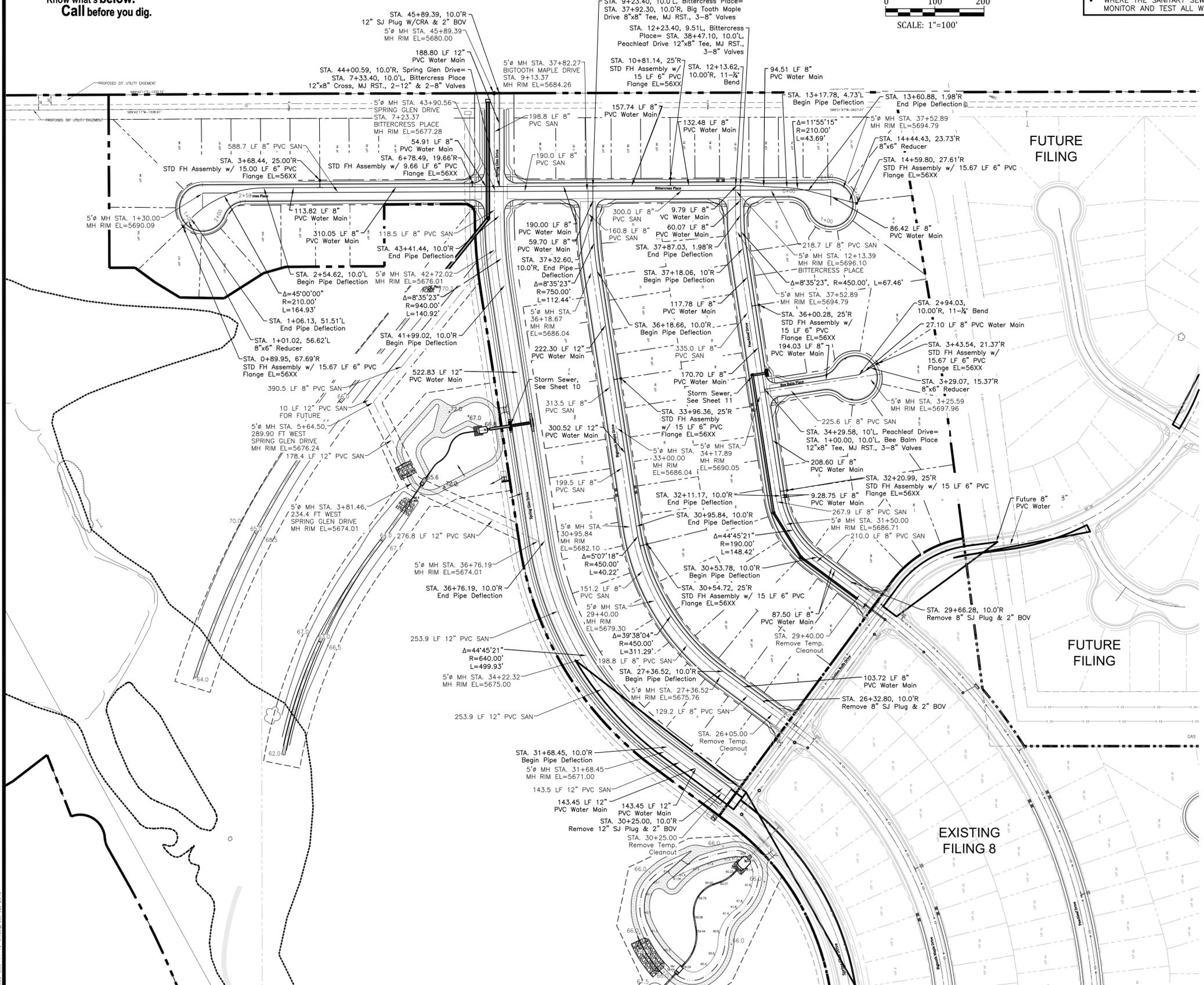
Know what's below.  
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FOR STORM SEWER DESIGN  
SEE SHEETS 10-11



SUBSEQUENT TO STRIPPING AND GRUBBING THE FOLLOWING OVERLOT/PIPE INSTALLATION PROCEDURES ARE ANTICIPATED FOR THE SANITARY SEWER LOCATED ON PROPOSED EMBANKMENTS:

- THE REMOVAL AND REPLACEMENT OF METASTABLE SOIL.
- TESTING OF THE FILL SUBSEQUENT TO THE PENETRATION OF THE METASTABLE SOIL WILL CONTINUE UNTIL A MINIMUM OF 7 FEET OF STRUCTURAL FILL HAS BEEN PLACED ABOVE THE PROPOSED SEWER LINE ELEVATION.
- UTILITY TRENCHES SHALL BE EXCAVATED AND SANITARY SEWER LINE INSTALLED. THE PIPE SHALL BE PROPERLY BEDDED AND STRUCTURAL FILL PLACED AND TESTED TO THE PREVIOUS GRADE.
- THE OVERLOT AND EMBANKMENT FILL CAN BE COMPLETED.
- WHERE THE SANITARY SEWER IS PLACED IN EMBANKMENT FILL DURING THE OVERLOT PROCESS, STE SHALL MONITOR AND TEST ALL WORK ASSOCIATED WITH THE AFFECTED PORTIONS.



**ADDITIONAL UTILITY NOTES**

GAS - ALL GAS MAINS AND SERVICES ARE TO BE INSTALLED PER THE CITY OF COLORADO SPRINGS.

ELECTRIC - ALL ELECTRIC SERVICES ARE TO BE INSTALLED PER THE CITY OF FOUNTAIN ELECTRIC DIVISION.

**UTILITY CONTACTS**

SEWER:	WIDEFIELD W&S DISTRICT (WWS)	390-7111
WATER:	WIDEFIELD W&S DISTRICT (WWS)	390-7111
ELECTRIC:	MOUNTAIN VIEW ELECTRIC	435-2282
GAS:	PEOPLES NATURAL GAS	800-303-0752
PHONE:	US WEST	636-4632

**LEGEND**

PROPOSED 8" PVC WATER MAIN (DR 18) WITH MJ FITTINGS (UNLESS OTHERWISE NOTED)

WIDEFIELD WATER & SANITATION DISTRICT STANDARD FIRE HYDRANT ASSEMBLY. INSTALL PER WIDEFIELD WATER AND SANITATION DISTRICT CONSTRUCTION SPECIFICATIONS

8" GATE VALVE (UNLESS OTHERWISE NOTED)

TEE w/ CONCRETE THRUST BLOCK

MINIMUM RADIUS SHOWN FOR WATER MAIN = 290' PER WWS SPECIFICATIONS AND EL PASO COUNTY ECM 4.3.6.A.1&2. THE MINIMUM COVER OVER WATER MAIN & SERVICES AND SANITARY SEWER MAINS & SERVICES IS 5 FEET.

**WATER AND SEWER MAIN EXTENSIONS**

Any changes or alterations affecting the grade, alignment, elevation and/or depth of cover of any water or sewer mains or other appurtenance shown on this drawing shall be the responsibility of the Owner/Developer. The Owner/Developer shall be responsible for all operational damages and defects in installation and material for mains and services from the date of approval until final acceptance is issued.

Signed: *[Signature]* Date: Sept 27<sup>th</sup> 2018

Print Name: J. Ryan Watson, President

DBA: GLEN DEVELOPMENT COMPANY

Address: 3 Widefield Boulevard  
Colorado Springs, CO 80911  
(719) 392-0194

**FIRE AUTHORITY APPROVAL**

The number of fire hydrants and hydrant locations shown on this water installation plan are correct and adequate to satisfy the fire protection requirements as specified by the Security Fire District.

Security Fire Department  
Signed: *[Signature]* Date: 10-3-18  
Security Fire Department

**UTILITY APPROVALS**

**DISTRICT APPROVALS**

The Widefield Water and Sanitation District recognizes the design engineer as having responsibility for the design. The Widefield Water and Sanitation District has limited its scope of review accordingly.

**WIDEFIELD WATER AND SANITATION DISTRICT WASTEWATER DESIGN APPROVAL**

Date: 9/26/2018 By: *[Signature]*

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

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.

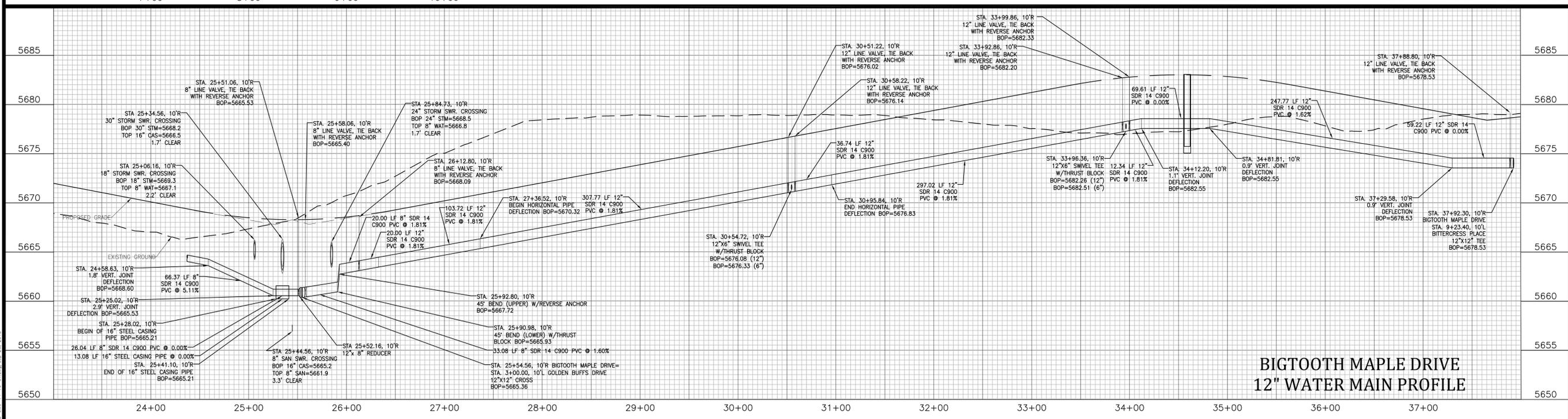
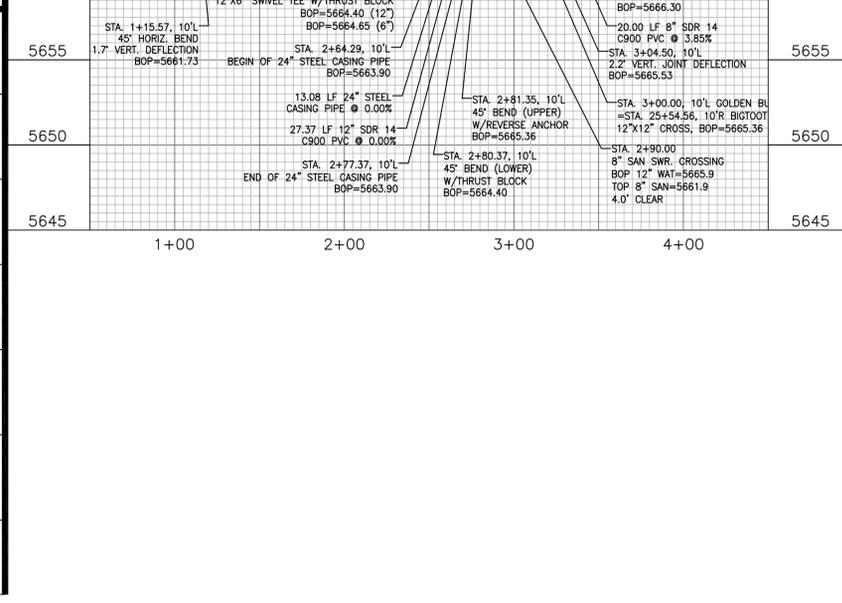
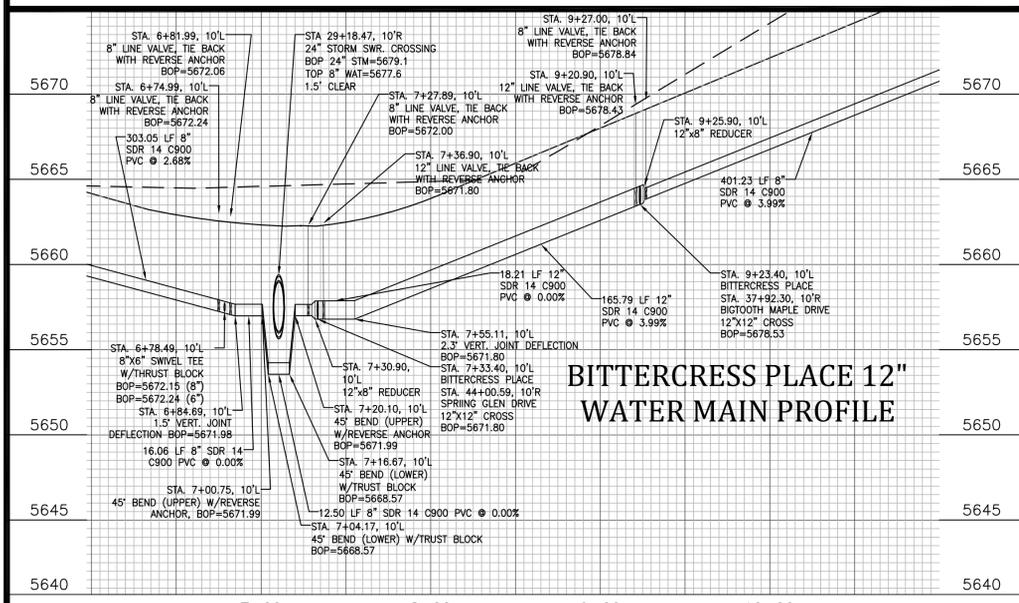
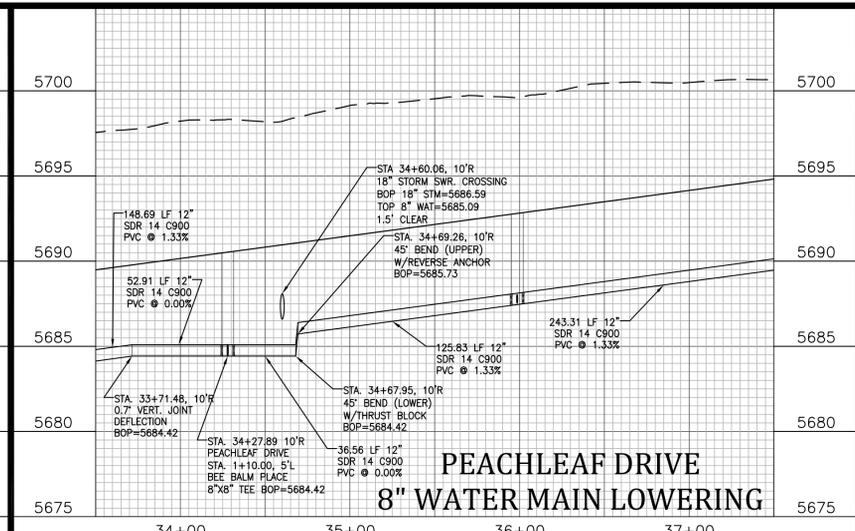
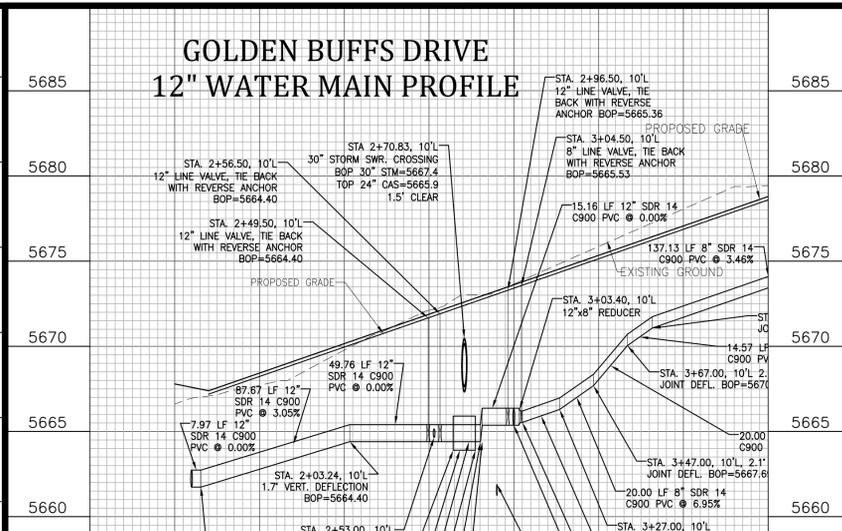
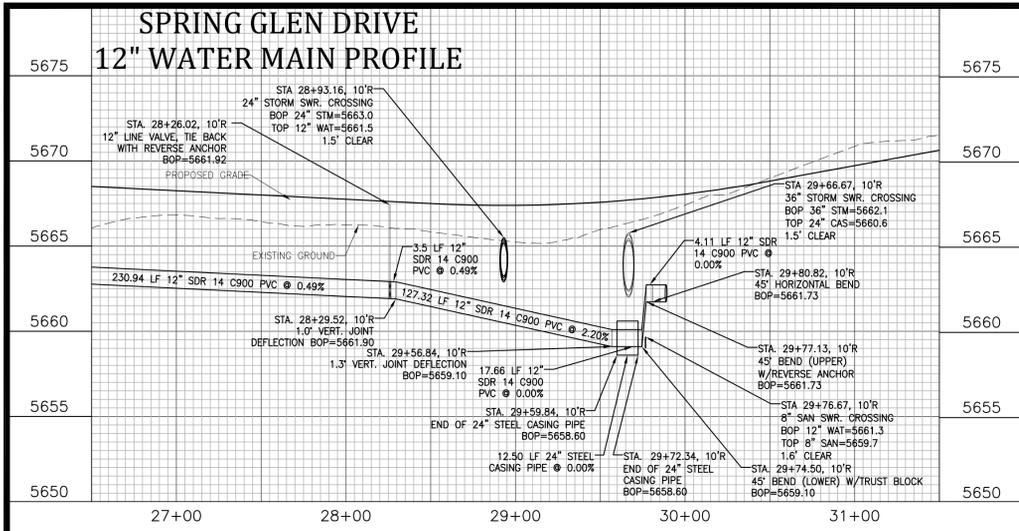
**WIDEFIELD WATER AND SANITATION DISTRICT WATER DESIGN APPROVAL**

Date: 9/26/2018 By: *[Signature]*

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

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.

Project No.:	17038
Date:	September 25, 2018
Design:	AWMc
Drawn:	JAK
Check:	AWMc
Revisions:	



**GLEN AT WIDEFIELD FILING NO. 9**  
**UTILITY PLAN**  
**WATER LINE LOWERING DETAILS**  
**EL PASO COUNTY, COLORADO**

Project No.:	17038
Date:	September 25, 2018
Design:	JAK
Drawn:	JAK
Check:	AWMc
Revisions:	

SHEET  
**15**  
15 of 20 Sheets

17038-000-14-16-11.dwg/25p.26, 2018

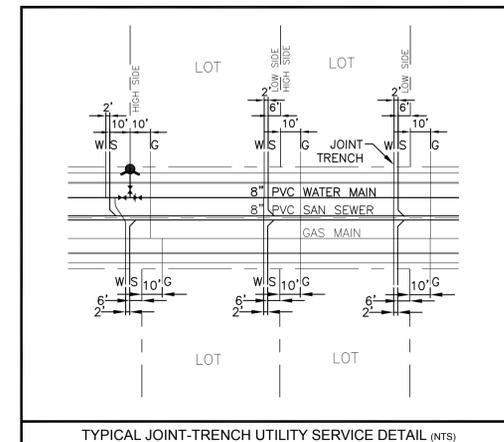
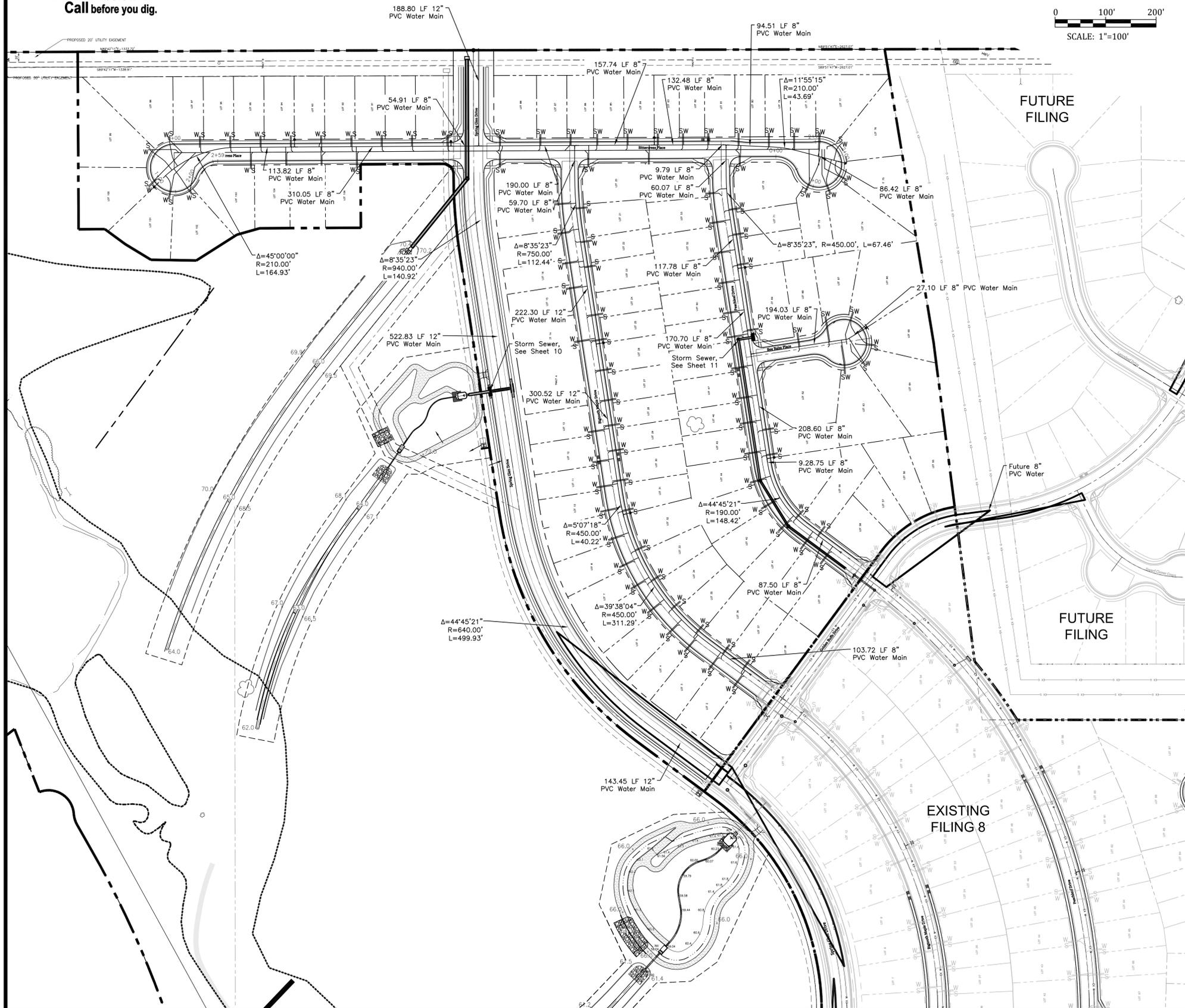


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FOR STORM SEWER DESIGN  
SEE SHEETS 10-11



0 100' 200'  
SCALE: 1"=100'



TYPICAL JOINT-TRENCH UTILITY SERVICE DETAIL (NTS)

**ADDITIONAL UTILITY NOTES**

GAS - ALL GAS MAINS AND SERVICES ARE TO BE INSTALLED PER THE CITY OF COLORADO SPRINGS.

ELECTRIC - ALL ELECTRIC SERVICES ARE TO BE INSTALLED PER MOUNTAINVIEW ELECTRIC ASSOCIATION.

**UTILITY CONTACTS**

SEWER:	WIDEFIELD W&S DISTRICT (WWS&S)	390-7111
WATER:	WIDEFIELD W&S DISTRICT (WWS&S)	390-7111
ELECTRIC:	MOUNTAINVIEW ELECTRIC	495-2283
GAS:	BLACKHILLS ENERGY	800-303-0752
PHONE:	US WEST	636-4632

**LEGEND**

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WIDEFIELD WATER & SANITATION DISTRICT STANDARD FIRE HYDRANT ASSEMBLY. INSTALL PER WIDEFIELD WATER AND SANITATION DISTRICT CONSTRUCTION SPECIFICATIONS

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**UTILITY APPROVALS**

**DISTRICT APPROVALS**

The Widefield Water and Sanitation District recognizes the design engineer as having responsibility for the design. The Widefield Water and Sanitation District has limited its scope of review accordingly.

**WIDEFIELD WATER AND SANITATION DISTRICT  
WASTEWATER DESIGN APPROVAL**

Date: 9/16/2018 By: Robert H. Brumley

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

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.

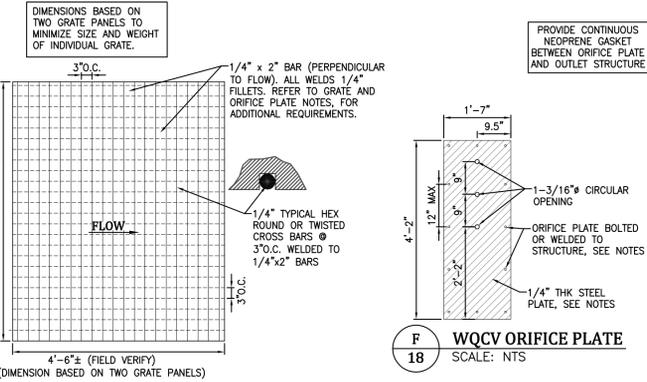
**WIDEFIELD WATER AND SANITATION DISTRICT  
WATER DESIGN APPROVAL**

Date: 9/16/2018 By: Robert H. Brumley

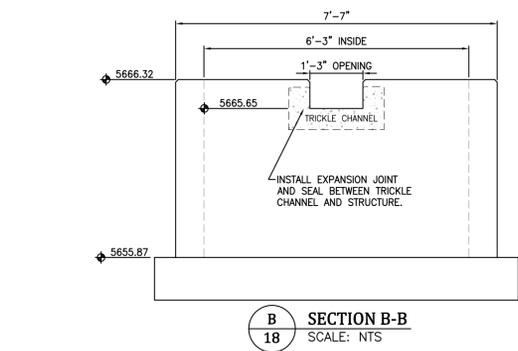
PROJECT NO. \_\_\_\_\_

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.

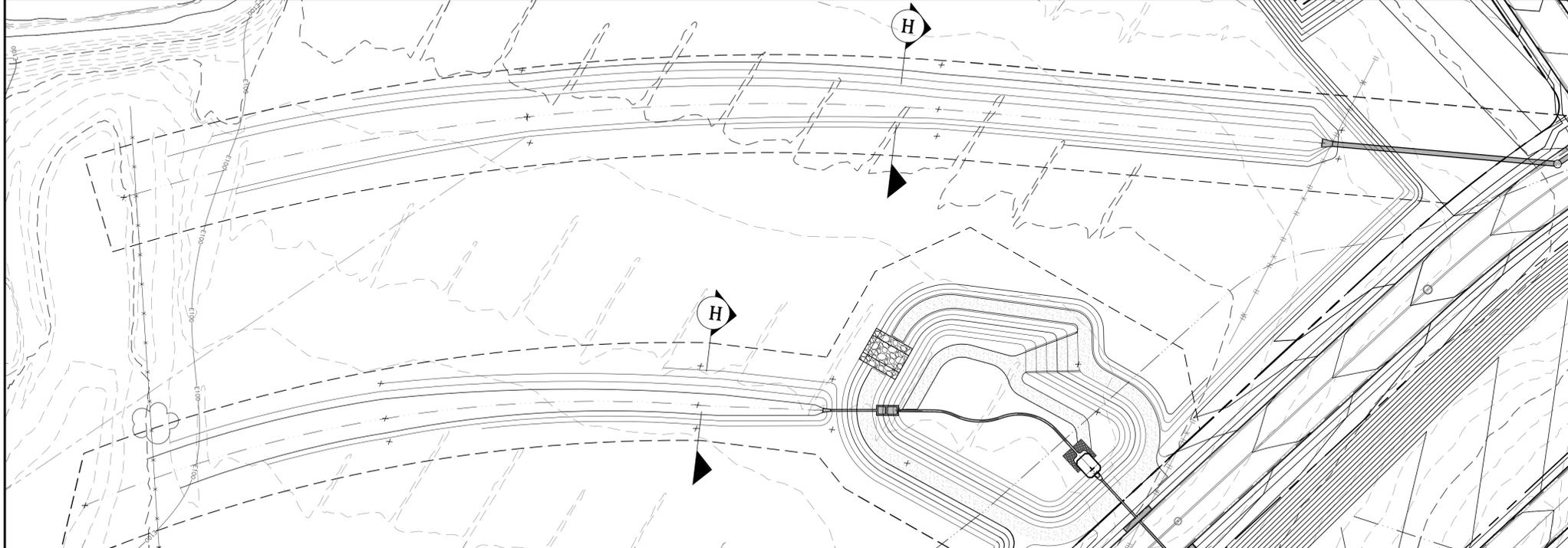
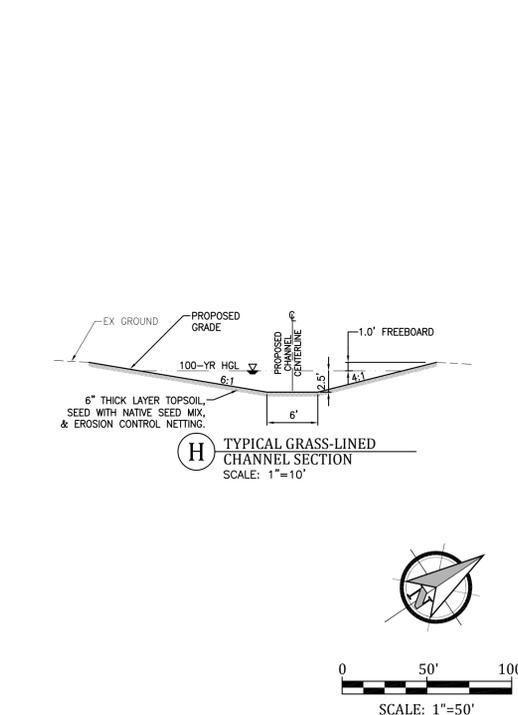
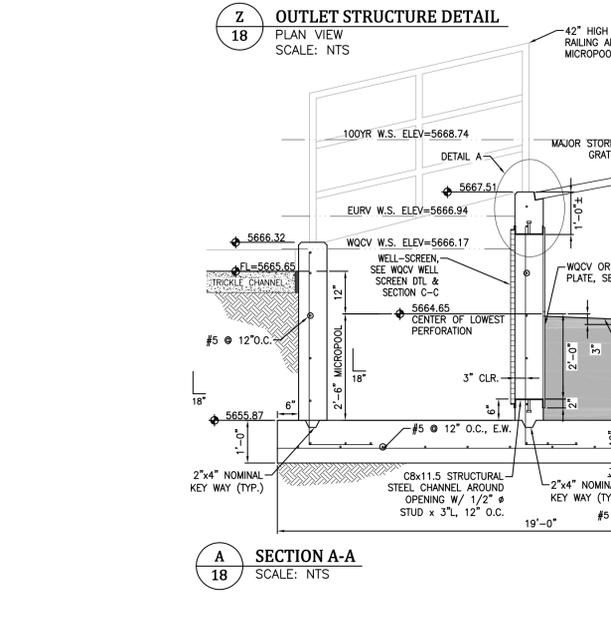
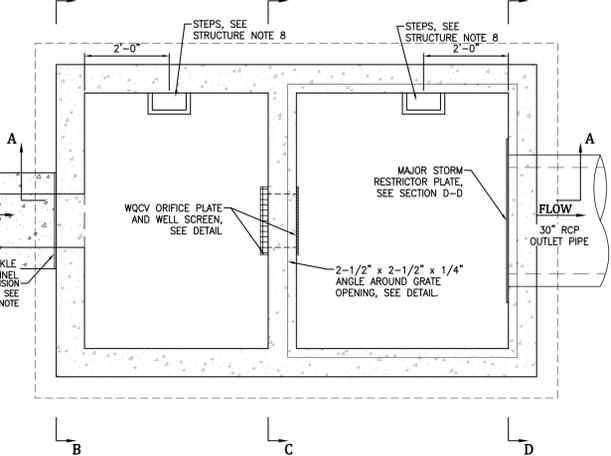
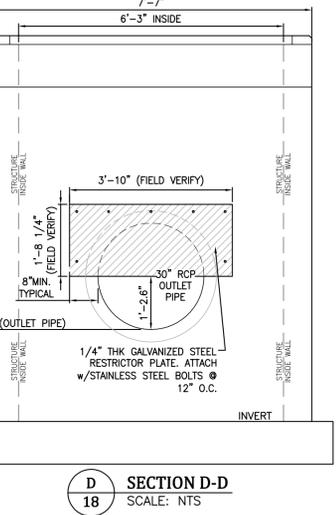
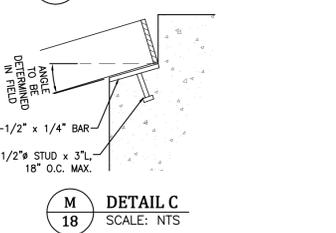
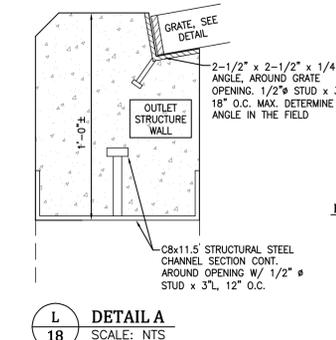
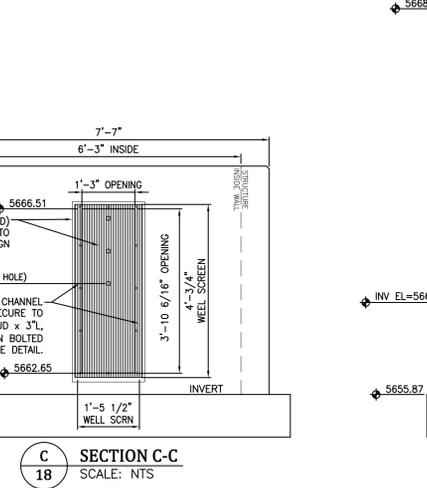
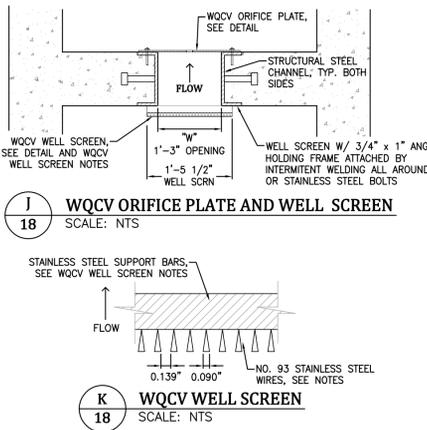
- STRUCTURE NOTES:**
- PRIOR TO CONSTRUCTION, CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR ALL COMPONENTS OF THE OUTLET STRUCTURE.
  - GRADE 60 REINFORCING STEEL REQUIRED. SEE TABLE FOR THE MINIMUM LAP SPICE LENGTH FOR REINFORCING BARS. ALL REINFORCING STEEL SHALL HAVE 2-INCH MINIMUM CLEARANCE FROM EDGE OF CONCRETE AND 3-INCH MIN CLEARANCE TO EDGE OF CONCRETE PLACED AGAINST SOIL, UNLESS OTHERWISE NOTED.
  - MIN. SPICE LENGTH: #4: 1'-3", #5: 1'-7", #6: 2'-0"
  - CONCRETE FOR THE OUTLET STRUCTURE AND FOREBAYS SHALL BE CDOT CLASS D CONCRETE.
  - EXPANSION JOINT MATERIAL SHALL MEET AASHTO SPECIFICATION M-213. EXPANSION JOINT MATERIAL SHALL BE 1/2" THICK, SHALL EXTEND THE FULL DEPTH OF CONTACT SURFACE AND THE JOINT SHALL BE SEALED, REFER TO DETAILS.
  - ALL EXPOSED CONCRETE CORNERS SHALL HAVE A 3/4-INCH CHAMFER UNLESS OTHERWISE NOTED.
  - BACKFILLING AGAINST WALLS SHALL NOT COMMENCE UNTIL CONCRETE HAS OBTAINED ITS FULL SEVEN DAY STRENGTH.
  - SUBGRADE TO BE 12" THK CLEAN FILL COMPACTED TO 95% STANDARD PROCTOR DENSITY PER ASTM M698 UNDER STRUCTURES.
  - OUTLET STRUCTURE STEPS SHALL CONFORM TO AASHTO M199.
  - FOREBAY: CONSTRUCTION JOINTS SHALL BE INSTALLED AT 10' O.C. MAXIMUM. THE JOINTS SHALL BE SEALED WITH A JOINT SEALANT.



- GRATE AND ORIFICE PLATE NOTES:**
- GRATES AND ORIFICE PLATES SHALL BE MOUNTED USING STAINLESS STEEL HARDWARE. GRATES TO BE BOLTED DOWN TO OUTLET STRUCTURE 18" O.C.
  - GRATES AND ORIFICE PLATES SHALL BE STAINLESS STEEL, ALUMINUM OR STEEL. STEEL TRASH RACKS SHALL BE HOT DIP GALVANIZED AND HOT POWDER PAINTED AFTER GALVANIZED.
  - FIELD VERIFY GRATE DIMENSION PRIOR TO FABRICATION.

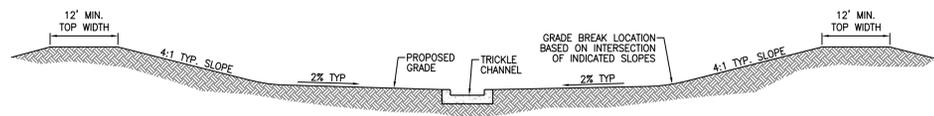


- WQCV WELL-SCREEN NOTES:**
- WELL-SCREEN SHALL BE STAINLESS STEEL AND ATTACHED BY INTERMITTANT WELDS OR STAINLESS STEEL BOLTS ALONG EDGE OF THE MOUNTING FRAME.
  - WQCV WELL-SCREEN:
    - TYPE OF SCREEN: STAINLESS STEEL #93 VEE WIRE (JOHNSON VEE WIRE TM STAINLESS STEEL SCREEN OR EQUIVALENT WITH 80% OPEN AREA)
    - SCREEN SLOT OPENING DIMENSION: 0.139" (SCREEN #93 VEE WIRE SLOT OPENING)
    - TYPE AND SIZE OF SUPPORT ROD: TE 0.074"x0.50"
    - SPACING OF SUPPORT ROD (O.C.): 1.0 INCH
    - TOTAL SCREEN THICKNESS: 0.855"
    - CARBON STEEL HOLDING FRAME TYPE: 3/4" x 1.0" ANGLE

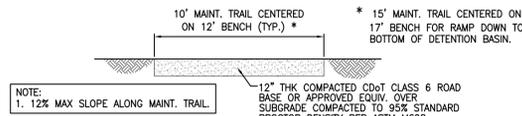


EXTENDED DETENTION BASIN 'A' AND GRASS-LINED CHANNELS TO WEST FORK JIMMY CAMP CREEK

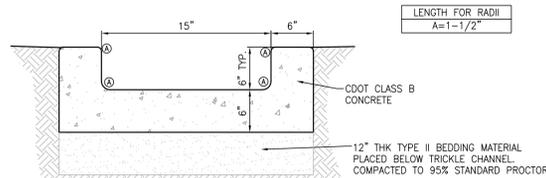
Project No.:	17038
Date:	September 25, 2018
Design:	JAK
Drawn:	JAK
Check:	AWMc
Revisions:	



**P**  
19 **DETENTION BASIN TYPICAL CROSS SECTION**  
SCALE: NTS



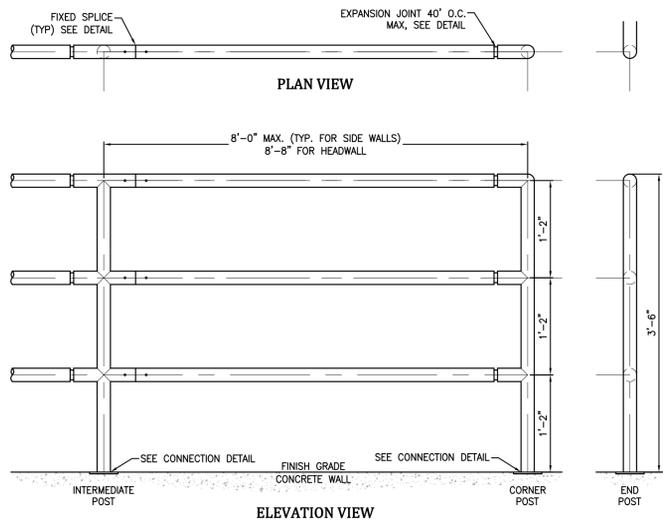
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19 **MAINTENANCE TRAIL SECTION**  
SCALE: NTS



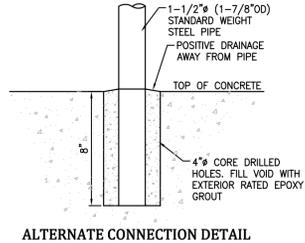
**N**  
19 **TRICKLE CHANNEL**  
SCALE: 1"=1'

CLASSIFICATION AND GRADATION OF RIPRAP			
Rip-Rap Designation	% Smaller than Given Size by Weight	Intermediate Rock Dimension (Inches)	d <sub>50</sub> * (Inches)
Type VL	70-100	12	6**
	50-70	9	
	35-50	6	
Type L	70-100	15	9**
	50-70	12	
	35-50	9	
Type M	70-100	21	12**
	50-70	18	
	35-50	12	
Type L	70-100	30	18
	50-70	24	
	35-50	18	
	2-10	6	

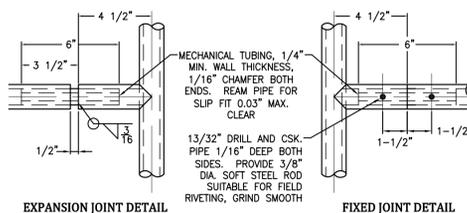
\* d<sub>50</sub>=Mean particle size (Intermediate Dimension) by weight.  
 \*\* Mix VL, L and M Rip-rap with 35% topsoil (by volume) and bury with 4-6 inches of topsoil, all vibration compacted and revegetate.  
 (Figure 8-34: Riprap and Soil Riprap Placement and Gradation, UDFCD, Drainage Criteria Manual, Volume 1)



- PEDESTRIAN RAILING/HANDRAIL NOTES:**
1. ALL HANDRAIL SHALL BE FABRICATED WITH NEW 1-1/2" (1-7/8" OD) DIAMETER STANDARD WEIGHT STEEL PIPE.
  2. WELD ALL PIPE JOINTS WITH 1/8" REINFORCED WELDS AND DRESS SMOOTH. CORNERS AND EDGES OF ALL BARS, PLATES AND PIPE ENDS SHALL BE Sanded SMOOTH AND FREE OF BURRS.
  3. ALL HANDRAIL MATERIAL REQUIRED FOR COMPLETE INSTALLATION SHALL BE PROVIDED.
  4. HANDRAIL FINISH SHALL BE ONE COAT METAL PRIMER AND TWO COATS SHERWIN WILLIAMS BRIDGE GREEN. COLOR SHALL BE VERIFIED BY COUNTY. CONTRACTOR TO FIELD VERIFY DIMENSIONS PRIOR TO FABRICATION.
  5. RAILING BETWEEN HEADWALL AND WINGWALL SHALL BE SEPARATE OR AN EXPANSION JOINT SHALL BE PROVIDED TO ALLOW FOR DIFFERENTIAL MOVEMENT.

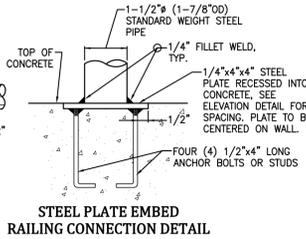


**ALTERNATE CONNECTION DETAIL**

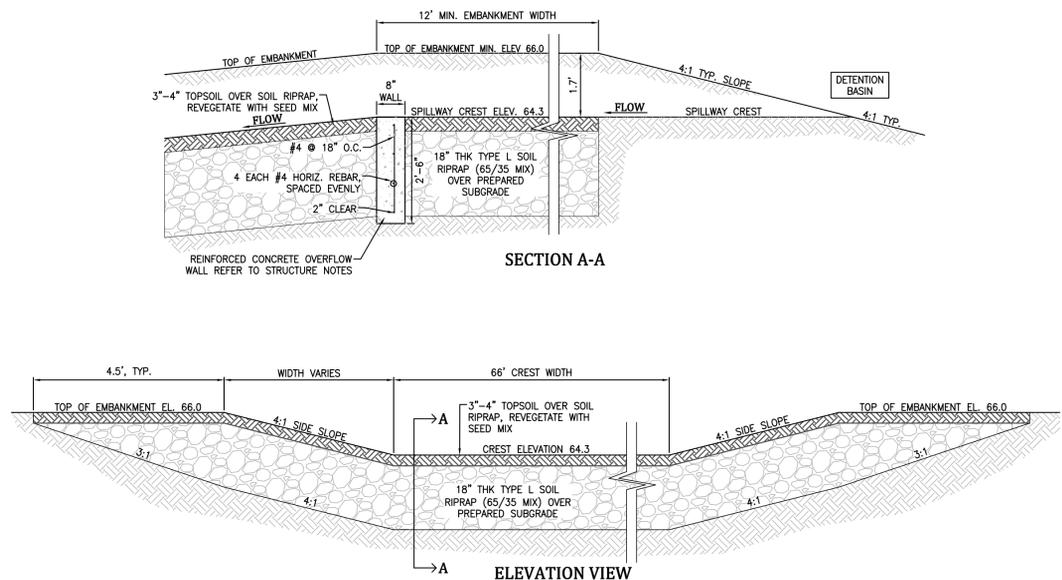


**EXPANSION JOINT DETAIL**

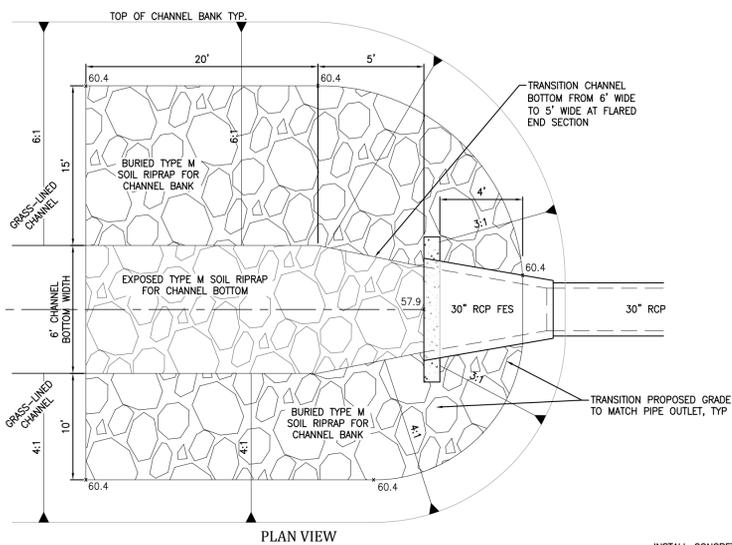
**FIXED JOINT DETAIL**



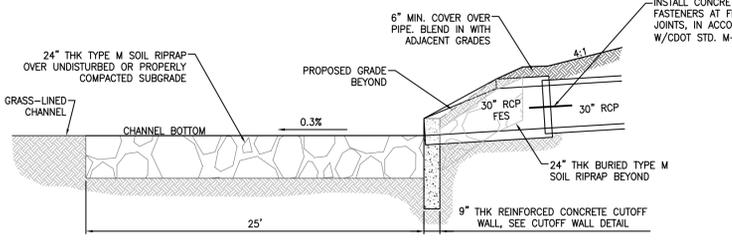
**STEEL PLATE EMBED RAILING CONNECTION DETAIL**



**O**  
19 **EMERGENCY SPILLWAY**  
SCALE: NTS



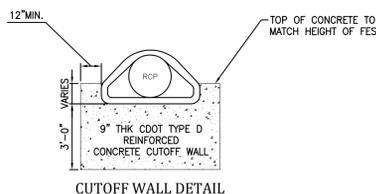
**PLAN VIEW**



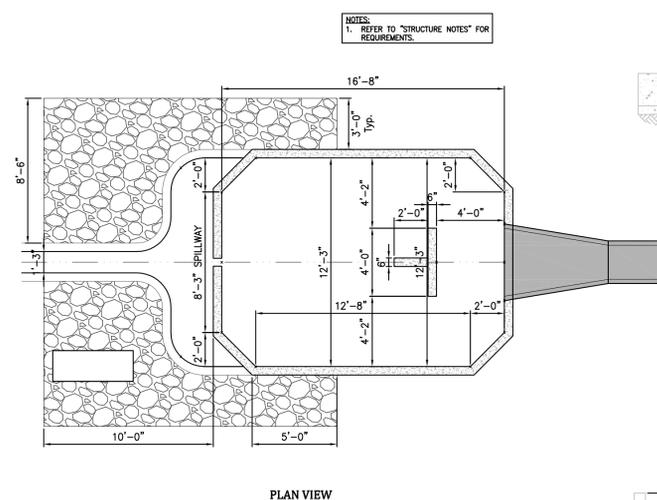
**ELEVATION VIEW**

**D**  
19 **30" RCP FES PIPE OUTLET w/CONCRETE CUTOFF WALL AND JOINT RESTRAINTS**  
SCALE: NTS

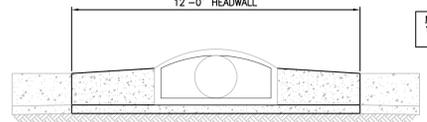
- NOTE:**
1. STEEL REINFORCEMENT FOR CUTOFF WALL SHALL BE #4 BARS AT 12" O.C. EACH WAY. STEEL REINFORCEMENT CLEARANCES SHALL BE 2" TO FORMED SURFACES AND FES, AND 3" TO SOIL.



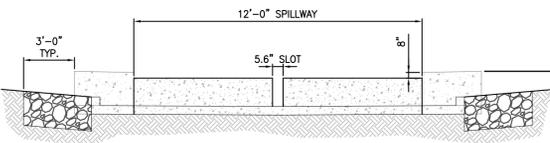
**CUTOFF WALL DETAIL**



**PLAN VIEW**



**SECTION C-C**



**SECTION B-B**

**R**  
19 **PRESEDIMENTATION FOREBAY**  
SCALE: NTS

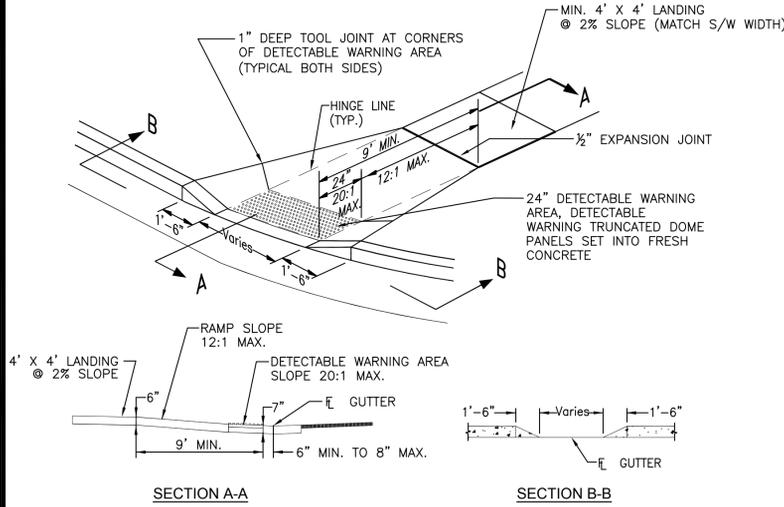
**GLEN AT WIDEFIELD FILING NO. 9**  
**SITE DETAIL PLAN**  
**DETENTION BASIN DETAILS**  
**EL PASO COUNTY, COLORADO**

Project No.:	17038
Date:	September 25, 2018
Design:	JAK
Drawn:	JAK
Check:	AWMc
Revisions:	

SHEET  
**18**  
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**GENERAL NOTES**

- EXPANSION JOINTS SHALL BE INSTALLED WHEN ABUTTING EXISTING CONCRETE OR FIXED STRUCTURE. EXPANSION JOINT MATERIAL SHALL BE 1/2" THICK AND SHALL EXTEND THE FULL DEPTH OF CONTACT SURFACE.
- CONCRETE SHALL BE PER EL PASO COUNTY ENGINEERING DIVISION SPECIFICATIONS.

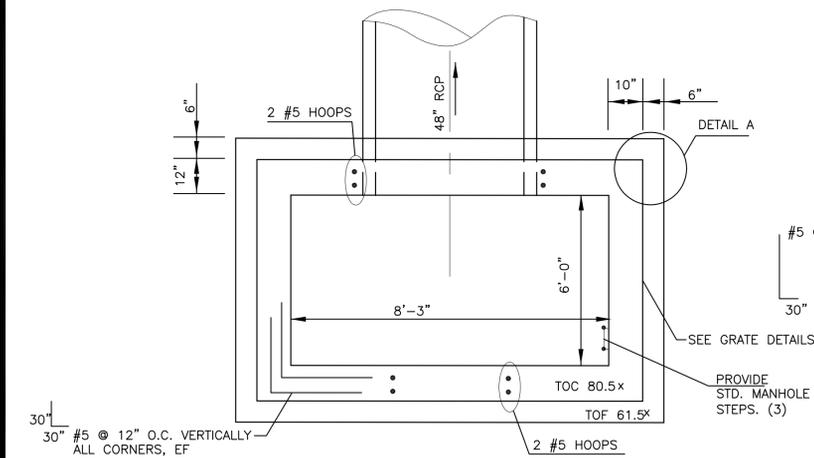


**PEDESTRIAN RAMP DETAILS**

EPC STD. SD\_2-40  
NOT TO SCALE

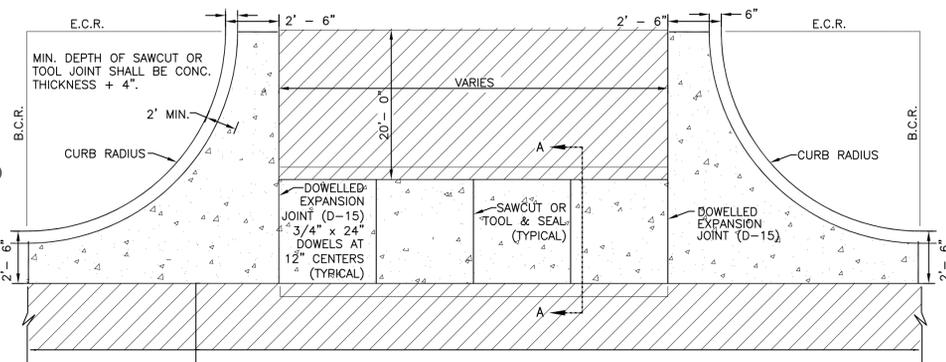
**GENERAL NOTES**

- All work shall be done in accordance with current Engineering Manual and ADA requirements.
- Contractor to notify Engineering Division inspection staff 48 hours prior to concrete placement.
- Pedestrian ramp construction shall be a minimum 3000 psi concrete, minimum 4" thick, non-colored, non-scored, coarse broom finish.
- Ramp location and length may require modification to maintain the 12:1 maximum running ramp slope and 20:1 detectable warning area due to street intersection grades and / or alignment.
- Detectable warning area shall start a minimum of 6" but not more than 8" from the flow line of the curb at any point.
- Detectable warning area shall be prefabricated reddish integrally colored truncated-dome surfaced thermoplastic.
- The detectable warning area shall be 24" in length and the full width of the ramp.
- Ramp width required is the same as approaching sidewalk, 4" minimum.
- all ramps will be perpendicular to traffic with the exception of mid-block or terminal ramps which may be parallel subject to approval.
- Avoid placing drainage structures, traffic signal / signage, utilities / junction boxes, or other obstructions within proposed ramp areas.
- Where the 1'-6" flared side(s) of a perpendicular curb ramp is (are) contiguous with a pedestrian or hard surface area, the flare width shall be increased to 8' minimum and the maximum flare slope shall not exceed 10:1.
- Pedestrian walkway and / or location of existing or future pedestrian ramps on opposite corners shall be reviewed before construction new ramps. New ramps shall align with existing ramps and pedestrian walkway.
- At marked pedestrian crossings, the bottom of the ramps, exclusive of the flare sides, shall be totally contained within the markings.
- Sidewalk cross-slope: 1/4"/ft.
- Concrete mix design shall conform to the requirements of the color admixture manufacturer and the following:
  - 28-day compressive strength = 4,000 PSI (min.)
  - Water/cement ratio = 0.45 (max.)
  - Cement content = 6-1/2 sacks/C.Y. (min.) (Type II cement)
  - Maximum aggregate size = 3/4"
  - Entrained air content = 6% - 10%
  - Slump = 1 inch (min.) - 4 inches (max.)

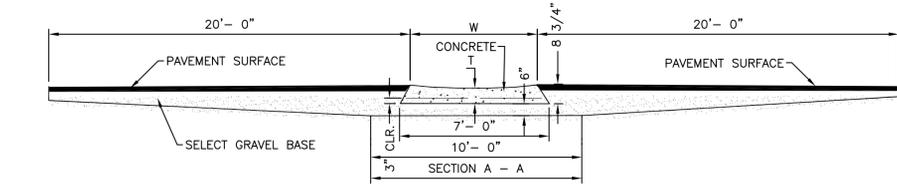


**100 YEAR OUTLET STRUCTURE PLAN**

NTS



**PLAN VIEW**



**SECTION A-A**

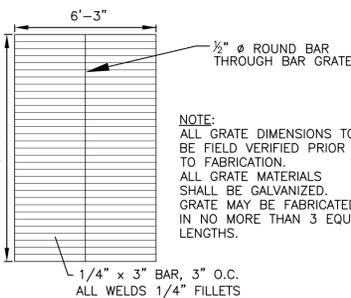
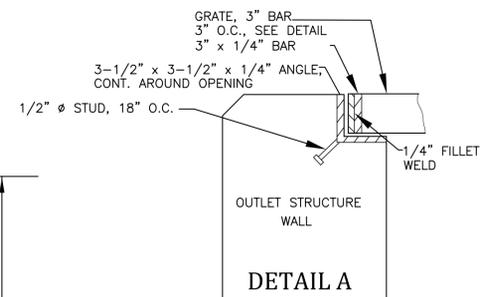
**NOTES**

- W - WIDTH SHALL BE 6" FOR LOCAL, 8" FOR COLLECTORS, AND 10" FOR ARTERIAL ROADS.
- T - SQUARED-OFF RETURN TO BE POURED MONOLITHIC 8" P.C.C. MINIMUM WITH 6x6 - 4.4 W.W.F. OR #4 @ 18" E.W.
- [Hatched symbol] = 3" MINIMUM ASPHALT DEPTH (2 LIFTS).
- DESIGN TO SPECIFY ELEVATIONS AT PI AND PCR

**CROSS PAN DETAIL**

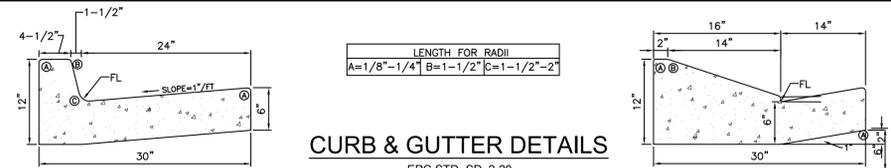
EPC STD. SD\_2-26

NOT TO SCALE



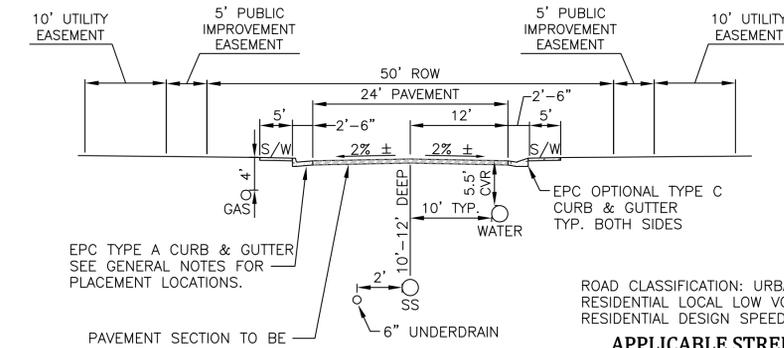
**TYPICAL WALL SECTION**

1"=2'



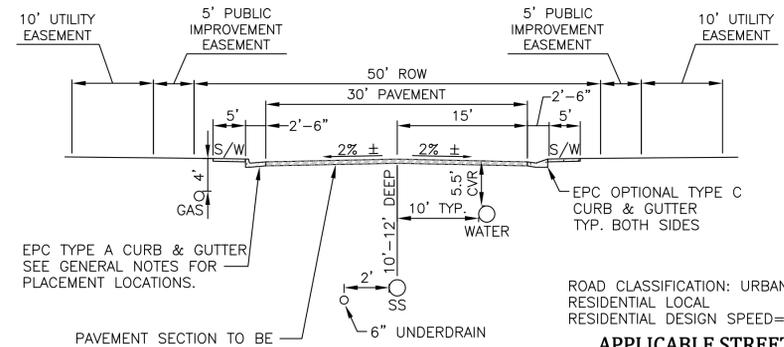
**EPC TYPE A CURB & GUTTER**

NTS



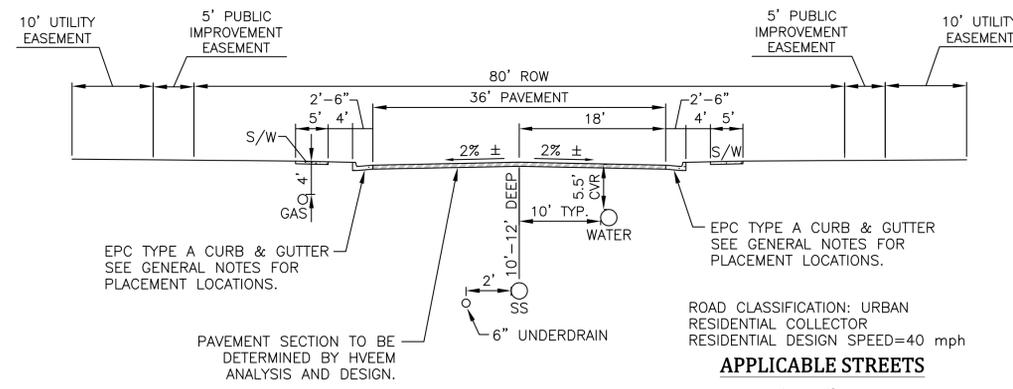
**TYPICAL STREET SECTION GLEN AT WIDEFIELD FILING NO. 9**

NOT TO SCALE



**TYPICAL STREET SECTION GLEN AT WIDEFIELD FILING NO. 9**

NOT TO SCALE



**TYPICAL STREET SECTION GLEN AT WIDEFIELD FILING NO. 9**

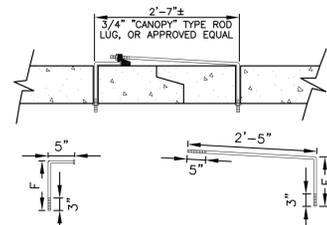
NOT TO SCALE

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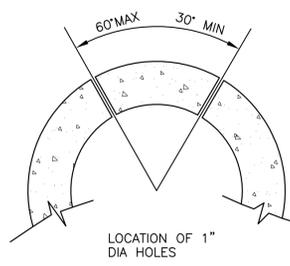
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**UNDERDRAIN NOTES**

1. UNDERDRAIN TO BE CONSTRUCTED WHERE INDICATED BY A DASHED LINE (---).
2. SOLID DRAIN PIPE WILL BE USED IN AREAS AS SHOWN ON THE PLANS AND AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
3. ALL UNDERDRAIN CONSTRUCTION SHALL CONFORM WITH THE LATEST CITY OF COLORADO SPRINGS STANDARDS.
4. ENGINEERING FABRIC TO HAVE A MINIMUM 12-INCH OVERLAP ABOVE UNDERDRAIN GRANULAR FILL.
5. UNDERDRAIN PIPE TO BE CONSTRUCTED WITH THE TOP OF PIPE EQUAL TO OR BELOW THE BOTTOM OF THE SANITARY SEWER PIPE.
6. GEOTECHNICAL ENGINEER TO DETERMINE EXTENT OF ACTIVE/PASSIVE UNDERDRAIN DEPENDING UPON CONDITIONS ENCOUNTERED DURING CONSTRUCTION.
7. THE CONNECTION BETWEEN THE ACTIVE AND PASSIVE PORTIONS OF THE UNDERDRAIN SYSTEM IS TO BE CONSTRUCTED WITH A NON-PERMEABLE BARRIER SO THAT ALL COLLECTED GROUNDWATER IS DIRECTED INTO THE PASSIVE PIPE SECTION.



3/4" GALVANIZED ANCHOR BOLTS, NUTS AND WASHERS, MILD STEEL, ASTM A 307, ROD LUG SHALL BE COATED WITH COAL-TAR, EPOXY PAINT OR APPROVED EQUAL.



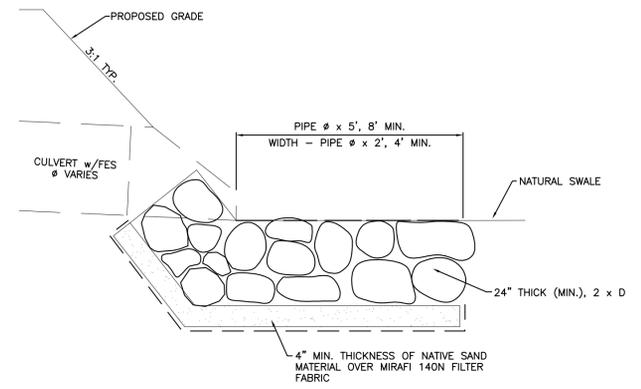
LOCATION OF 1" DIA HOLES

NOTE: CONCRETE JOINT FASTENERS REQUIRED ON THE FIRST TWO PIPE JOINTS FROM A FLARED END SECTION.

PIPE DIAMETER	F
18"-30"	5"
36"-42"	6"
48"-60"	7"
72"-84"	9"

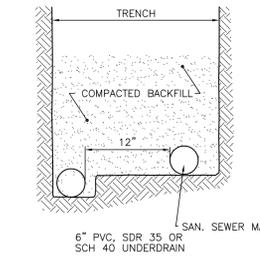
**CONCRETE PIPE JOINT FASTENER DETAIL**

NOT TO SCALE



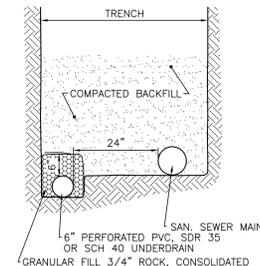
**TYPICAL CULVERT OUTLET PROTECTION**

NOT TO SCALE



**PASSIVE UNDERDRAIN DETAIL**

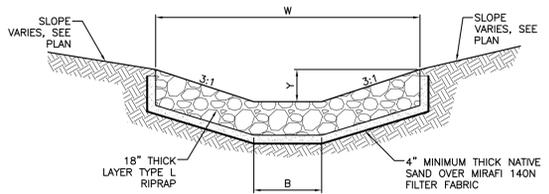
NOT TO SCALE



**ACTIVE UNDERDRAIN DETAIL**

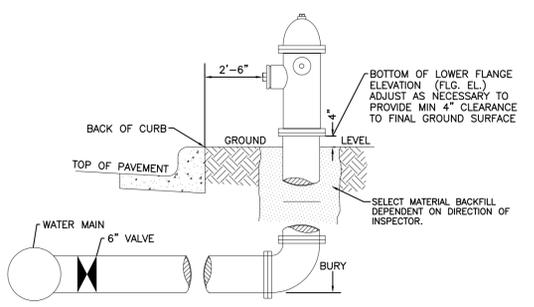
NOT TO SCALE

LOCATION	B	W	Y
NORTH RUNDOWN	1'	7'	1'
SOUTH RUNDOWN	1'	7'	1'



**RIPRAP RUNDOWN DETAIL - PEACEFUL VALLEY ROAD AT MARKSHEFFEL ROAD**

SCALE: NTS



**GENERAL NOTES:**

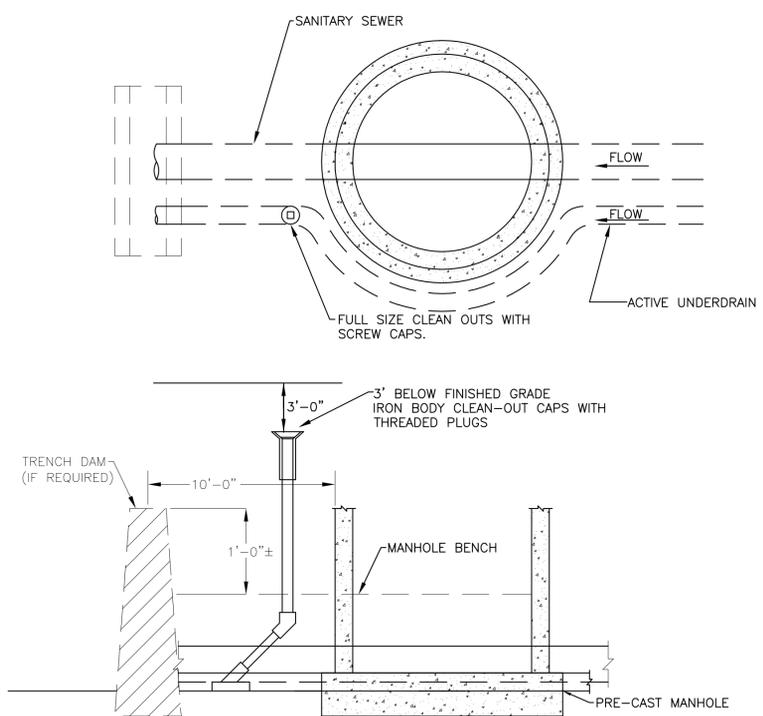
1. Hydrant nozzles shall be positioned at right angles to curb, if no curb or sidewalk exists, nozzles shall be placed at right angle to street or alley.
2. Hydrants shall be placed a minimum of 5.0 feet from any utility or drainage structure.
3. Any hydrant being installed with conditions other than those mentioned and/or detailed below will require signed approval from the Widefield Water District and Security Fire District.
4. See Site Utility Plan for hydrant locations and flange elevations.
5. The upper exposed section of the hydrant above ground shall be painted rustoleum 659 yellow or equal. The buried portion of the hydrant shall be given a bituminous coating in accordance with Section 10-8.1 of AWA Standard C110.

**FIRE HYDRANT DETAIL**

NOT TO SCALE

SUBSEQUENT TO STRIPPING AND GRUBBING THE FOLLOWING OVERLOT/PIPE INSTALLATION PROCEDURES ARE ANTICIPATED FOR THE SANITARY SEWER LOCATED ON PROPOSED EMBANKMENTS:

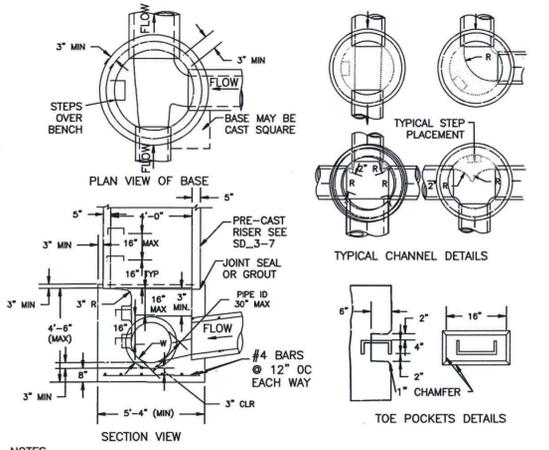
- THE REMOVAL AND REPLACEMENT OF METASTABLE SOIL.
- TESTING OF THE FILL SUBSEQUENT TO THE PENETRATION OF THE METASTABLE SOIL WILL CONTINUE UNTIL A MINIMUM OF 7 FEET OF STRUCTURAL FILL HAS BEEN PLACED ABOVE THE PROPOSED SEWER LINE ELEVATION.
- UTILITY TRENCHES SHALL BE EXCAVATED AND SANITARY SEWER LINE INSTALLED. THE PIPE SHALL BE PROPERLY BEDDED AND STRUCTURAL FILL PLACED AND TESTED TO THE PREVIOUS GRADE.
- THE OVERLOT AND EMBANKMENT FILL CAN BE COMPLETED.
- WHERE THE SANITARY SEWER IS PLACED IN EMBANKMENT FILL DURING THE OVERLOT PROCESS, STE SHALL MONITOR AND TEST ALL WORK ASSOCIATED WITH THE AFFECTED PORTIONS.



**GROUNDWATER UNDERDRAIN DETAIL**

CLEANOUT LOCATIONS OUTSIDE MANHOLE

NOT TO SCALE



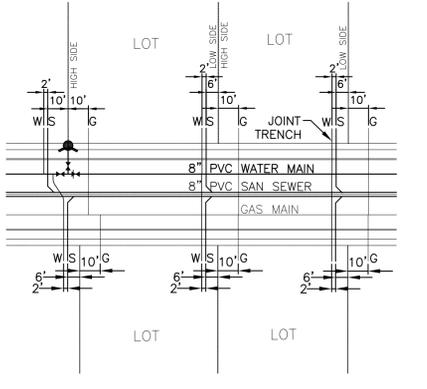
**NOTES**

1. TYPE II MANHOLES SHALL BE USED WHEN APPROPRIATE AND TYPICALLY WHEN THE PIPE SIZES ARE 30" OR LESS INSIDE DIAMETER.
2. VIEW AND DETAILS ARE TYPICAL. DESIGN ENGINEER SHALL DETERMINE MANHOLE BASE CONFIGURATION AND DIMENSIONS FOR PARTICULAR PIPE SIZES AND ALIGNMENT.
3. EITHER LADDER OF STEPS SHALL BE INSTALLED WHEN MANHOLE DEPTH EXCEEDS 30". STEPS IN BASE SHALL BE INSTALLED IN "TOE POCKETS" (SEE DETAIL THIS SHEET). LOWEST STEP SHALL BE A MAXIMUM OF 16" ABOVE THE FLOOR.
4. PIPES SHALL BE TRIMMED TO FINAL SHAPE AND SET BEFORE MANHOLE IS POURED.
5. BENCH SHALL BE SLOPED TOWARD CENTER OF MANHOLE BASE (4:1 MAX., 1/2" PER FOOT. MIN.).
6. FLOOR OF MANHOLE SHALL BE TROWELLED TO A SMOOTH, HARD SURFACE AND SHALL SLOPE TOWARDS THE OUTLET (8:1., 1/2" PER FT. MIN.). FLOOR SHALL BE SHAPED AND CHANNLED; SEE DETAILS THIS SHEET.

**STORM SEWER MANHOLE DETAIL TYPE II**

EPC STD. SD\_3-2

NOT TO SCALE



**TYPICAL JOINT-TRENCH UTILITY SERVICE DETAIL**

NOT TO SCALE

**GLEN AT WIDEFIELD FILING NO. 9  
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UTILITY DETAILS  
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