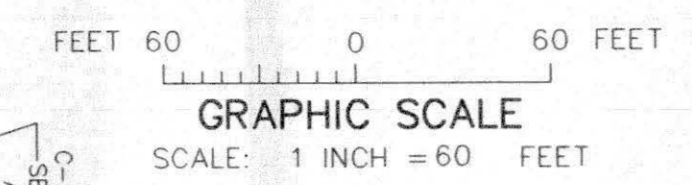


GENERAL NOTES:

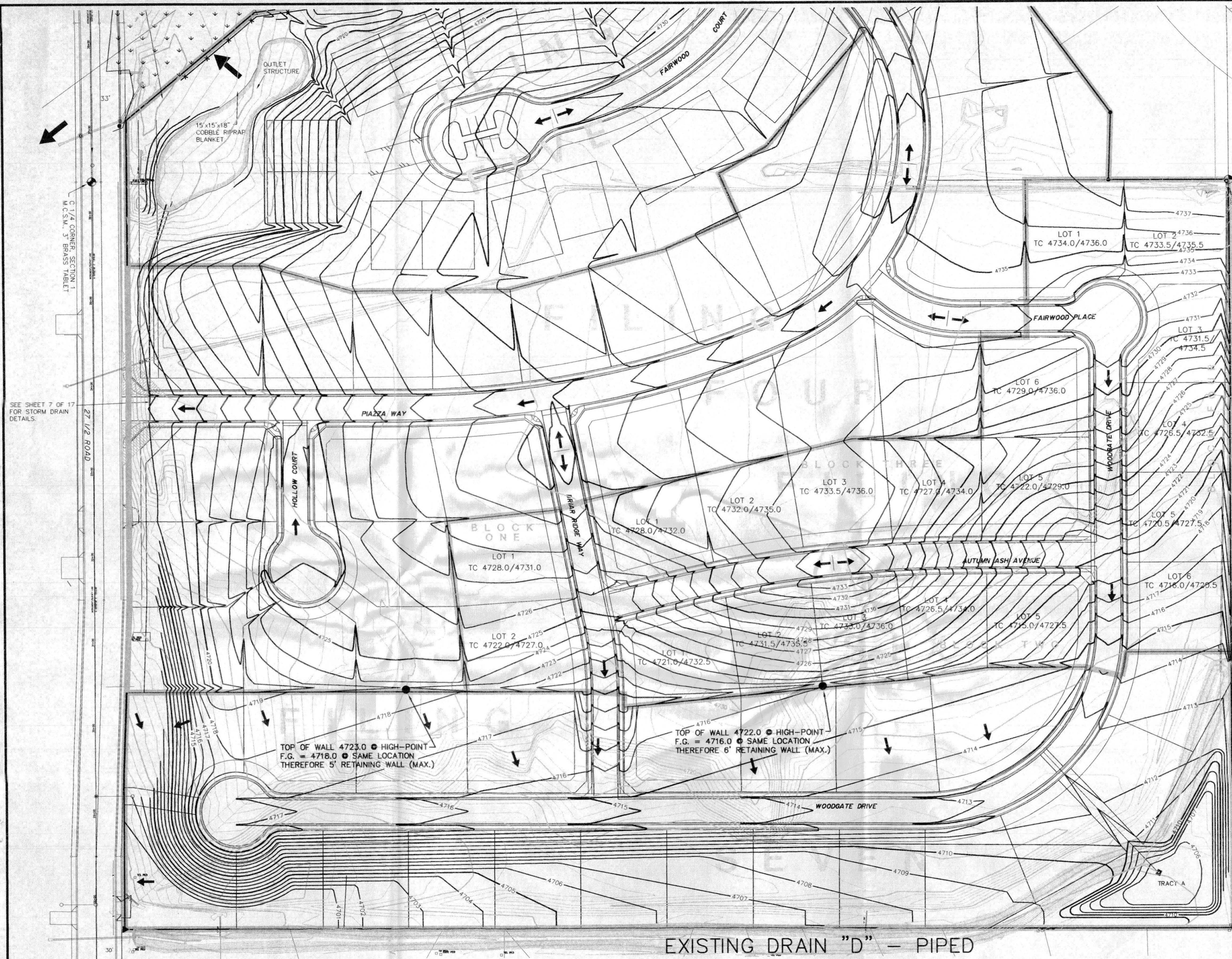
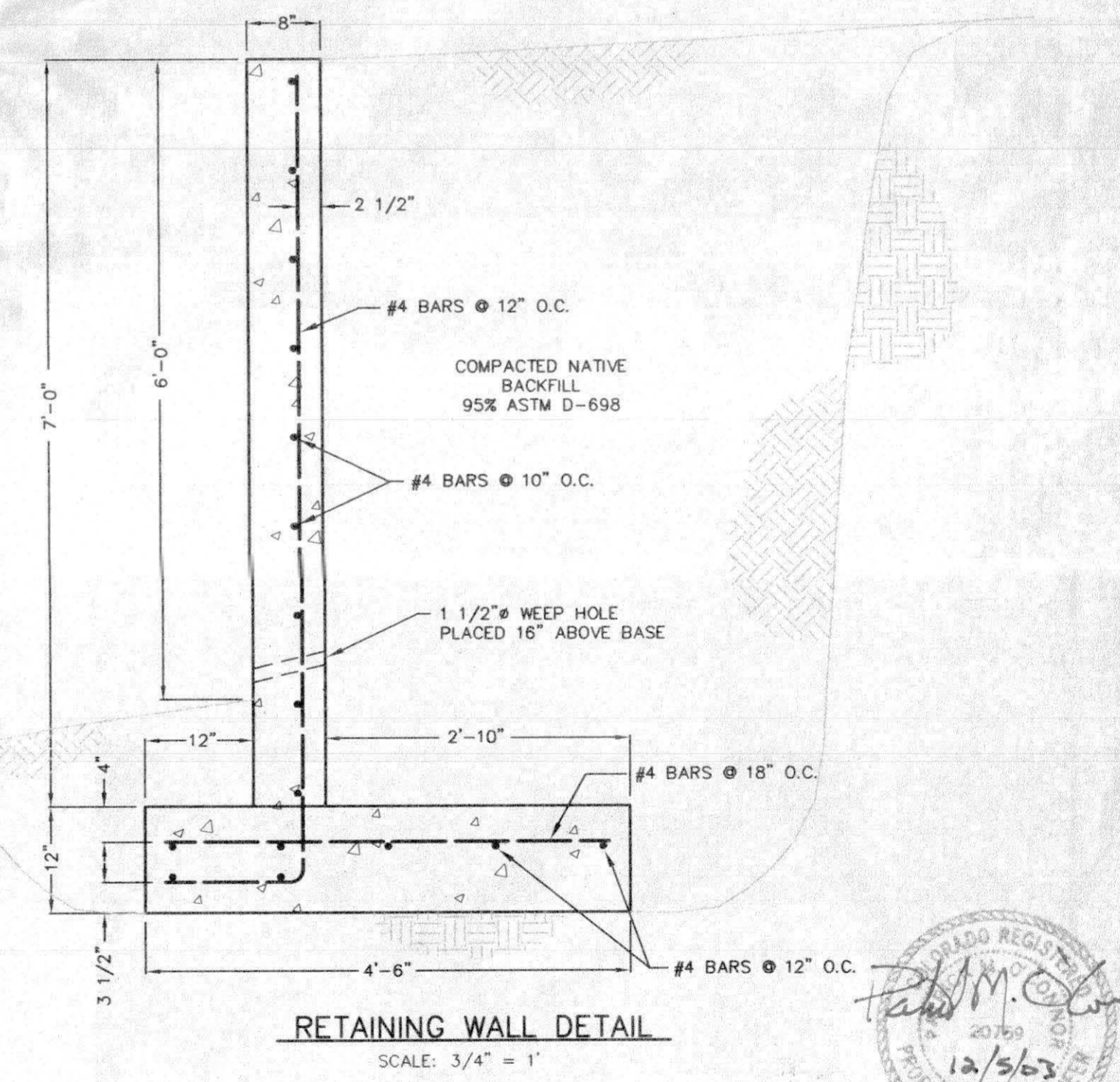
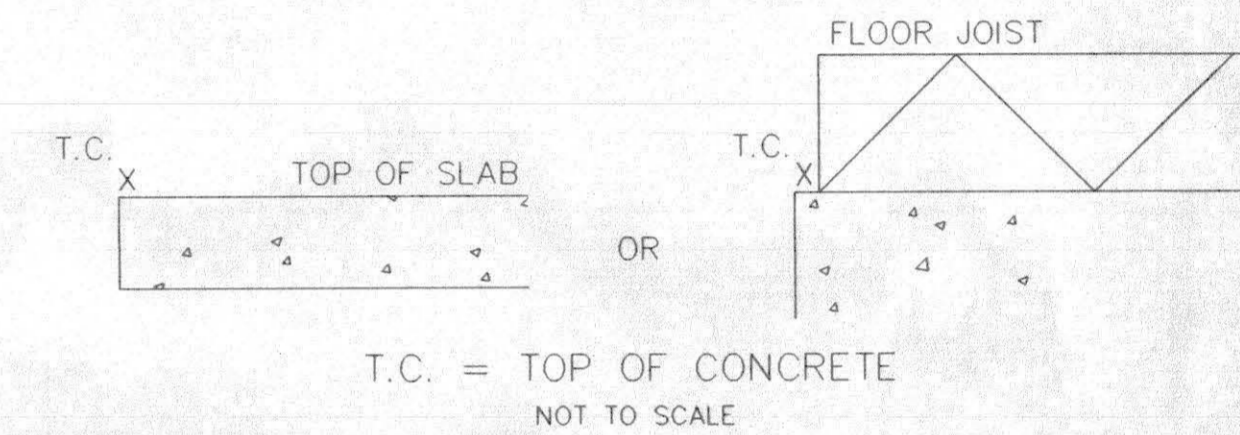
- CONSTRUCTION STAGING AREAS WILL BE THE UNDEVELOPED LOTS THAT MAKE UP THE LOTS. NO STAGING AREAS WILL BE PERMITTED ON ANY ADJACENT PROPERTIES.
- SITE TOPSOIL IS NOT SUITABLE FOR SUPPORT OF PROPOSED CONSTRUCTION. TOPSOIL SHALL BE STRIPPED FROM ALL FILL AREAS AND STRUCTURAL PAD AREAS AND STOCKPILED FOR USE ON FINAL OVERLOT GRADING.

**KNOLLS SUBDIVISION
TOP OF CONCRETE ELEVATION TABULATION
9/26/03**



LOT	BLOCK	ADDRESS	(MINIMUM) T.C. ELEV.	(MAXIMUM) T.C. ELEV.
1	1	BRIAR RIDGE WAY	4728.0	4731.0
2	1	BRIAR RIDGE WAY	4722.0	4727.0
1	2	AUTUMN ASH AVENUE	4721.0	4732.5
1	2	BRIAR RIDGE WAY	4721.0	4732.5
2	2	AUTUMN ASH AVENUE	4731.5	4735.5
3	2	AUTUMN ASH AVENUE	4733.0	4736.0
4	2	AUTUMN ASH AVENUE	4733.0	4736.0
5	2	AUTUMN ASH AVENUE	4726.5	4734.0
6	2	AUTUMN ASH AVENUE	4715.0	4727.5
9	2	WOODGATE DRIVE	4715.0	4727.5
1	3	AUTUMN ASH AVENUE	4728.0	4732.0
1	3	BRIAR RIDGE WAY	4728.0	4732.0
2	3	AUTUMN ASH AVENUE	4732.0	4735.0
3	3	AUTUMN ASH AVENUE	4733.5	4736.0
4	3	AUTUMN ASH AVENUE	4727.0	4734.0
5	3	AUTUMN ASH AVENUE	4722.0	4729.0
5	3	WOODGATE DRIVE	4722.0	4729.0
6	3	WOODGATE DRIVE	4729.0	4736.0
6	3	FAIRWOOD PLACE	4729.0	4736.0
1	4	FAIRWOOD PLACE	4734.0	4736.0
2	4	FAIRWOOD PLACE	4733.5	4735.5
3	4	WOODGATE DRIVE	4731.5	4734.5
4	4	WOODGATE DRIVE	4726.5	4732.5
5	4	WOODGATE DRIVE	4720.5	4727.5
6	4	WOODGATE DRIVE	4716.0	4720.5

NOTE:
MINIMUM T.C. ELEVATIONS MUST BE 12" (MINIMUM) ABOVE THE BACK-OF-WALK ELEVATION PERPENDICULAR TO THE FOUNDATION (TO CREATE POSITIVE DRAINAGE TO THE STREET AND AWAY FROM FOUNDATION). MAXIMUM T.C. ELEVATIONS MUST NOT CREATE DRIVEWAY SLOPES IN EXCESS OF ALLOWABLE MAXIMUMS OR SIDE-SLOPES AWAY FROM FOUNDATIONS IN EXCESS OF 3:1 (HORIZ:VERT). THE WIDE RANGE OF ELEVATIONS IS NECESSARY, AT THIS TIME, DUE TO UNCERTAINTY IN FINAL BUILDING LOCATIONS.



SEE SHEET 7 OF 17 FOR STORM DRAIN DETAILS.

TOP OF WALL 4723.0 @ HIGH-POINT
F.G. = 4718.0 @ SAME LOCATION
THEREFORE 5' RETAINING WALL (MAX.)

TOP OF WALL 4722.0 @ HIGH-POINT
F.G. = 4716.0 @ SAME LOCATION
THEREFORE 6' RETAINING WALL (MAX.)

EXISTING DRAIN "D" - PIPED

NOTE: SITE RUNOFF TO BE ROUTED TO DETENTION POND IN SOUTHEAST CORNER OF SITE (TRACT-A FUTURE FILING 7) FOR TEMPORARY PUMPING TO 27 1/2 ROAD PER CITY OF GRAND JUNCTION RETENTION REQUIREMENTS.

LEGEND

- CONTOUR (EXISTING)
- CONTOUR (PROPOSED)
- FILING BOUNDARY
- DRAINAGE DIRECTION

PROJECT BENCHMARK/CONTROL

- MCSM C-N 1/16 COR. SEC. 1 27-1/2 ROAD & CORTLAND AVE. NORTHING 5001.082 EASTING 8679.160 ELEVATION 4733.98
- MCSM C 1/4 COR. SEC. 1 27-1/2 ROAD STA 36+38.90 NORTHING 3680.552 EASTING 8678.783

APPROVED FOR CONSTRUCTION:

[Signature] 12/1/03
CITY DEVELOPMENT ENGINEER DATE

ACCEPTED AS CONSTRUCTED:

CITY DEVELOPMENT ENGINEER DATE

DRAWN BY: S.G.S.	REVIEWED DATE: _____ FOR _____
DESIGNED BY: P.M.O.	REVIEWED DATE: _____ FOR VISTA ENGINEERING CORP.
CHECKED BY: P.M.O.	

VISTA ENGINEERING CORP.
CONSULTING ENGINEERS AND LAND SURVEYORS
2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81608 • (970) 243-2242

REVISION	DATE	DESCRIPTION	BY	CH'D
1	7-14-03	REVISED AS PER 1ST ROUND REVIEW COMMENTS	SGS	PMO
2	9-26-03	REVISED T.C. ELEVATIONS AS PER 2ND ROUND REVIEW COMMENTS	FJB	PMO
3	12-5-03	ADDED FILING 7 CONTOURS AND 3RD ROUND REVIEW COMMENTS	SGS	PMO

O.P. DEVELOPMENT CO., LLC GRAND JUNCTION, COLORADO

**GRADING PLAN
THE KNOLLS SUBDIVISION, FILING 6**

SCALE: 1" = 60'	JOB NO: 4003.06-02	DATE: 4-09-03
SHEET NO: 17 of 20		

GENERAL NOTES:

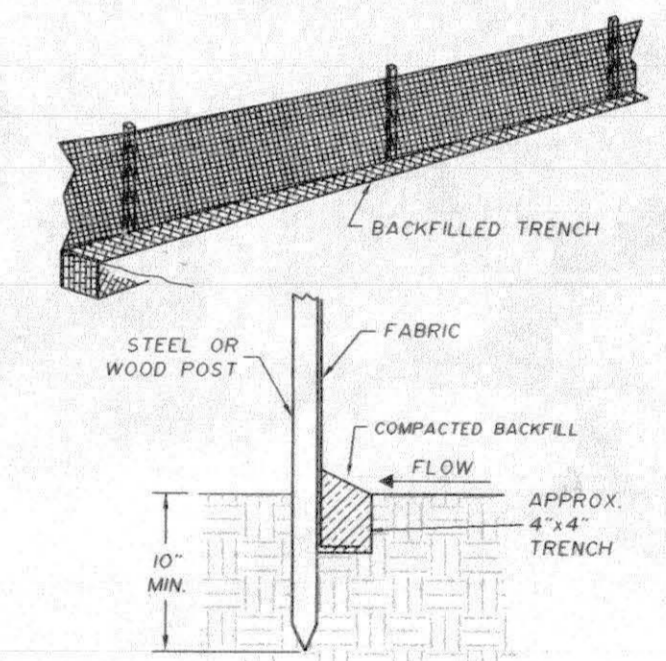
- CONSTRUCTION STAGING AREAS WILL BE THE UNDEVELOPED LOTS THAT MAKE UP THE LOTS. NO STAGING AREAS WILL BE PERMITTED ON ANY ADJACENT PROPERTIES.
- SITE TOPSOIL IS NOT SUITABLE FOR SUPPORT OF PROPOSED CONSTRUCTION. TOPSOIL SHALL BE STRIPPED FROM ALL FILL AREAS AND STRUCTURAL PAD AREAS AND STOCKPILED FOR USE ON FINAL OVERLOT GRADING.

STORMWATER MANAGEMENT NOTES:

- AT ALL TIMES DURING CONSTRUCTION, EROSION AND SEDIMENT CONTROL SHALL BE MAINTAINED BY THE DEVELOPER OR HIS DESIGNATED REPRESENTATIVE.
- EROSION CONTROL SYSTEM SHALL BE INSTALLED AS GRADING PROGRESSES.
- EROSION BALES SHALL BE STRAW OR HAY, DEPENDING ON AVAILABILITY.
- DETAILS SHOWN ARE SCHEMATIC ONLY. ADJUST AS NECESSARY TO FIT FIELD CONDITIONS.
- EROSION BALES SHALL BE PLACED TO AVOID RUNOFF FLOWING BETWEEN, AROUND OR UNDER BALES. BALES SHALL BE ANCHORED WITH 2" x 2" x 4" WOODEN STAKES OR #4 REINFORCING BARS, TWO PER BALE (SEE DETAILS FOR FURTHER INSTRUCTIONS).
- NEGATIVE IMPACTS TO DOWNSTREAM AREAS (OR RECEIVING WATERS) CAUSED BY THE OVERLOT GRADING TO BE MONITORED AND CORRECTED BY THE DEVELOPER.
- MULCH SHALL BE APPLIED TO ACHIEVE A STUBBLED SURFACE TO THE DESIGNATED AREAS TO PREVENT DUST AND AID IN LIMITING WIND EROSION. CONTRACTOR SHALL HAVE A WATER TRUCK MADE AVAILABLE TO ASSIST IN CONTROLLING DUST AND WIND EROSION.
- CONSTRUCTION TRAFFIC ENTRANCES SHALL BE CLEANED ON A CONTINUAL BASIS DURING OVERLOTTING AND DURING THE DURATION HOME CONSTRUCTION.
- MAINTENANCE OF THE STORMWATER MANAGEMENT FACILITIES SHALL BE THE RESPONSIBILITY OF THE HOMEOWNERS. RECORDS OF SUCH MAINTENANCE SHALL BE RETAINED BY THE H.O.A.

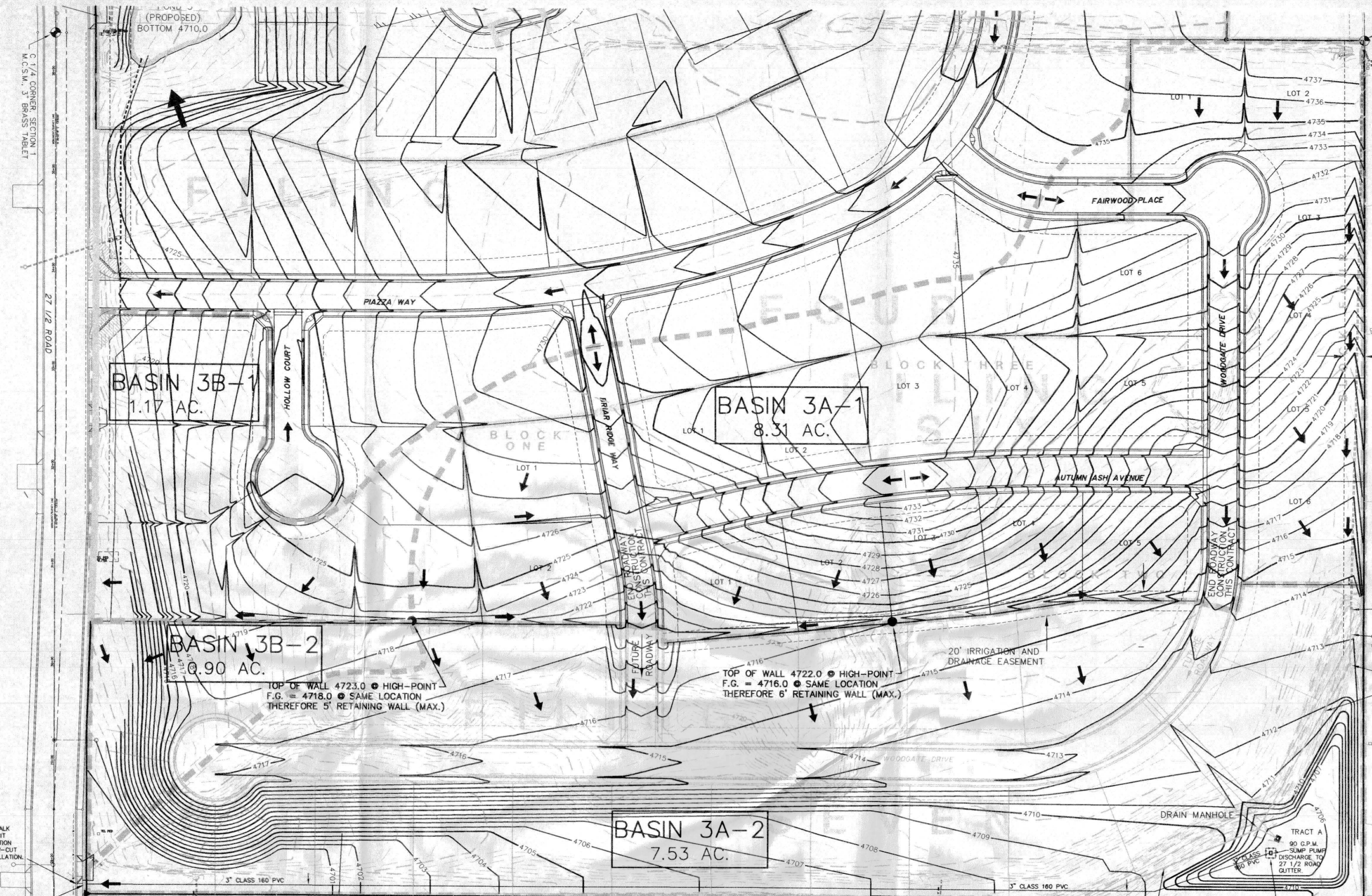
LEGEND

- CONTOUR (EXISTING)
- CONTOUR (PROPOSED)
- BASIN BOUNDARY
- DRAINAGE DIRECTION
- SILT-FENCE



DETAIL B - SILT FENCE
N.T.S.

NOTE: FILING 7 DETENTION POND SHALL BE UTILIZED AS FILING 6 TEMPORARY RETENTION. INSTALL 90 GPM SLUMP-PUMP (WITH TEMPORARY ELECTRICAL POWER) TO DISCHARGE TO 27 1/2 ROAD.



DEVELOPED BASIN 3B
2.66 ACRES
DIRECT-DISCHARGE TO 27 1/2 ROAD
Q₂ = 0.53 CFS
Q₁₀₀ = 2.75 CFS

DEVELOPED BASIN 3A
15.84 ACRES (8.31 DEV., 7.53 UNDEV.)
DRAINAGE TO TEMP. RETENTION POND
Q₂ = 2.49 CFS
Q₁₀₀ = 12.94 CFS

HISTORIC - SOUTH BASIN
23.96 ACRES
DIRECT-DISCHARGE TO 27 1/2 ROAD
AND EXISTING OPEN-CHANNEL DRAIN DITCH
Q₂ = 1.91 CFS
Q₁₀₀ = 10.73 CFS

TEMPORARY RETENTION POND STAGE-VOLUME TABLE:

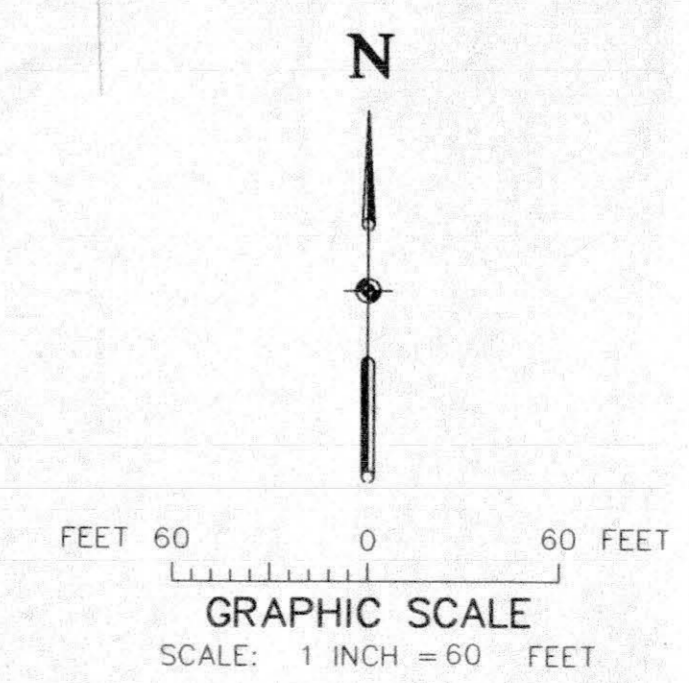
ELEV.	VOLUME (CUBIC-FEET)
4705	0
4706	1,400
4707	7,473
4708	16,572
4709	27,647
4710	40,819

RETENTION VOLUME REQ'D:

V = PRECIP. x AREA x C (100 YEAR)
 $V = (2.01"/12) \times (8.31 \text{ AC.} \times 43,560) \times (0.38)$
 $+ (2.01"/12) \times (7.53 \text{ AC.} \times 43,560) \times (0.20)$
 $V = 23,040 + 10,988 = 34,028 \text{ CUBIC-FEET}$

RETENTION POND EVACUATION:

34,028 FT³ x 7.48 GAL/FT³ = 254,529 GALLONS
 254,529 GAL/90 G.P.M. = 2828 MINUTES = 47.1 HOURS
 POND EVACUATED IN 47.1 HOURS @ 90 G.P.M.



PROJECT BENCHMARK/CONTROL

- MCSM C-N 1/16 COR. SEC. 1 27-1/2 ROAD & CORTLAND AVE. NORTHING 5001.082 EASTING 8679.160 ELEVATION 4733.98
- MCSM C 1/4 COR. SEC. 1 27-1/2 ROAD STA 36+38.90 NORTHING 3680.552 EASTING 8678.783

APPROVED FOR CONSTRUCTION:

W/A
CITY DEVELOPMENT ENGINEER DATE

ACCEPTED AS CONSTRUCTED:

CITY DEVELOPMENT ENGINEER DATE

DRAWN BY: S.G.S.	REVIEWED BY: P.M.O.
DESIGNED BY: P.M.O.	CHECKED BY: P.M.O.

VISTA ENGINEERING CORP.
CONSULTING ENGINEERS AND LANDSURVEYORS
2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81608 • (970) 243-2242

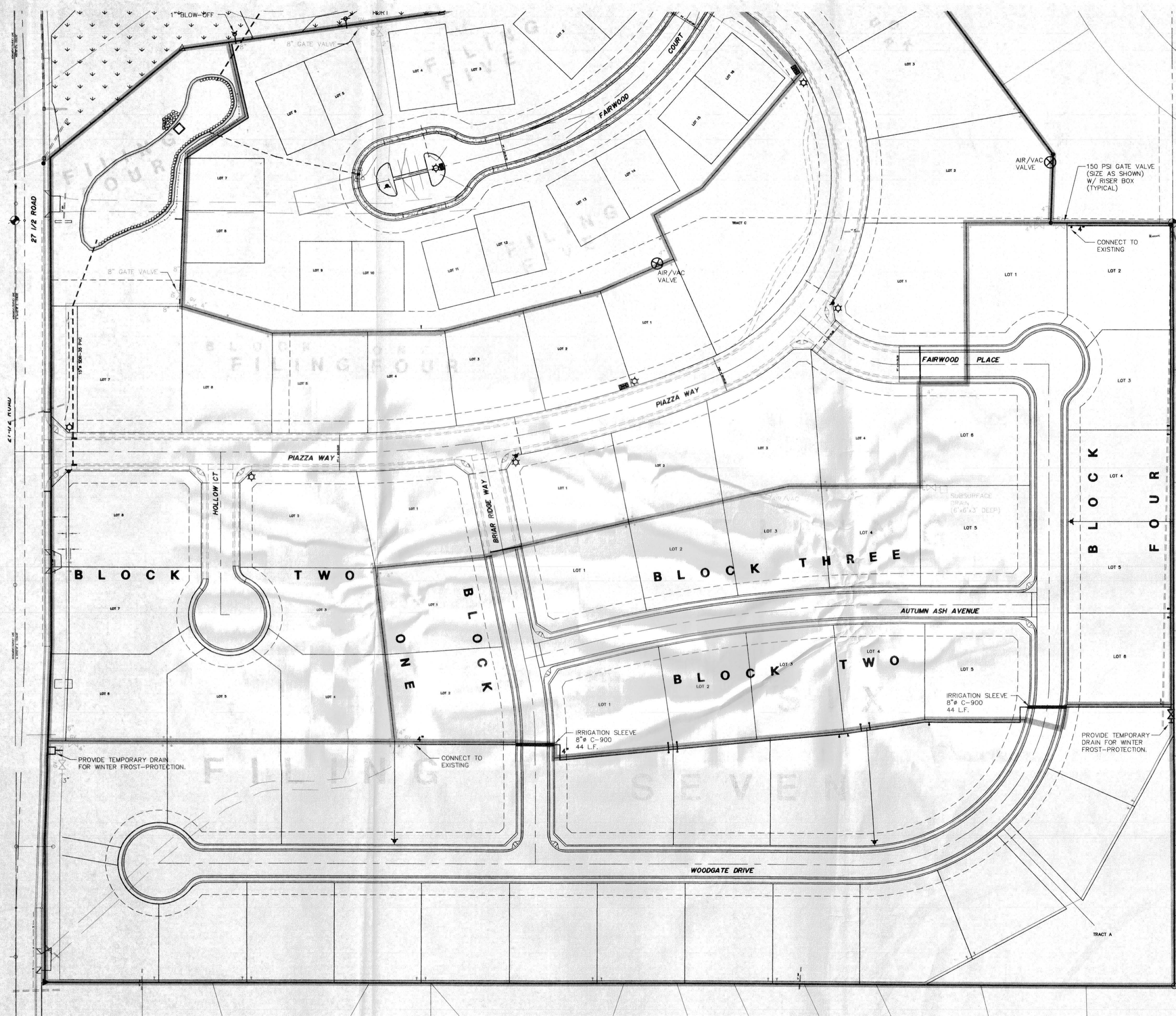
REVISION	DATE	DESCRIPTION	BY	CHK'D
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2	9-26-03	REVISED AS PER 2ND ROUND REVIEW COMMENTS	SGS	PMO
3	12-5-03	ADDED FILING 7 CONTOURS AND 3RD ROUND REVIEW COMMENTS	SGS	PMO

O.P. DEVELOPMENT CO., LLC

GRAND JUNCTION, COLORADO

STORMWATER MANAGEMENT PLAN
THE KNOLLS SUBDIVISION, FILING 6

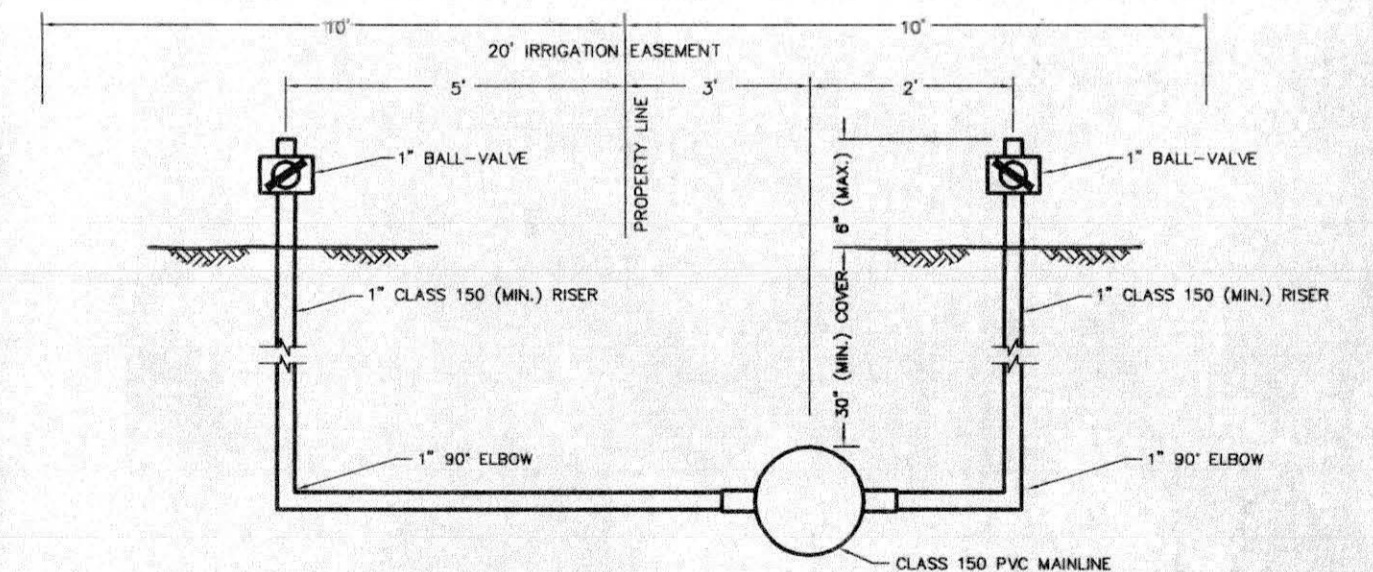
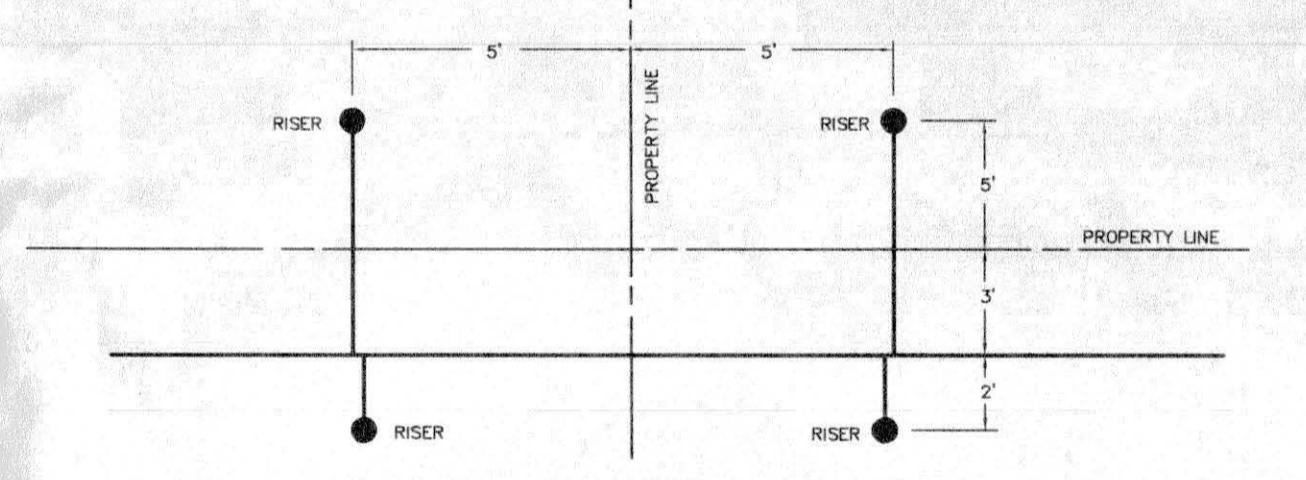
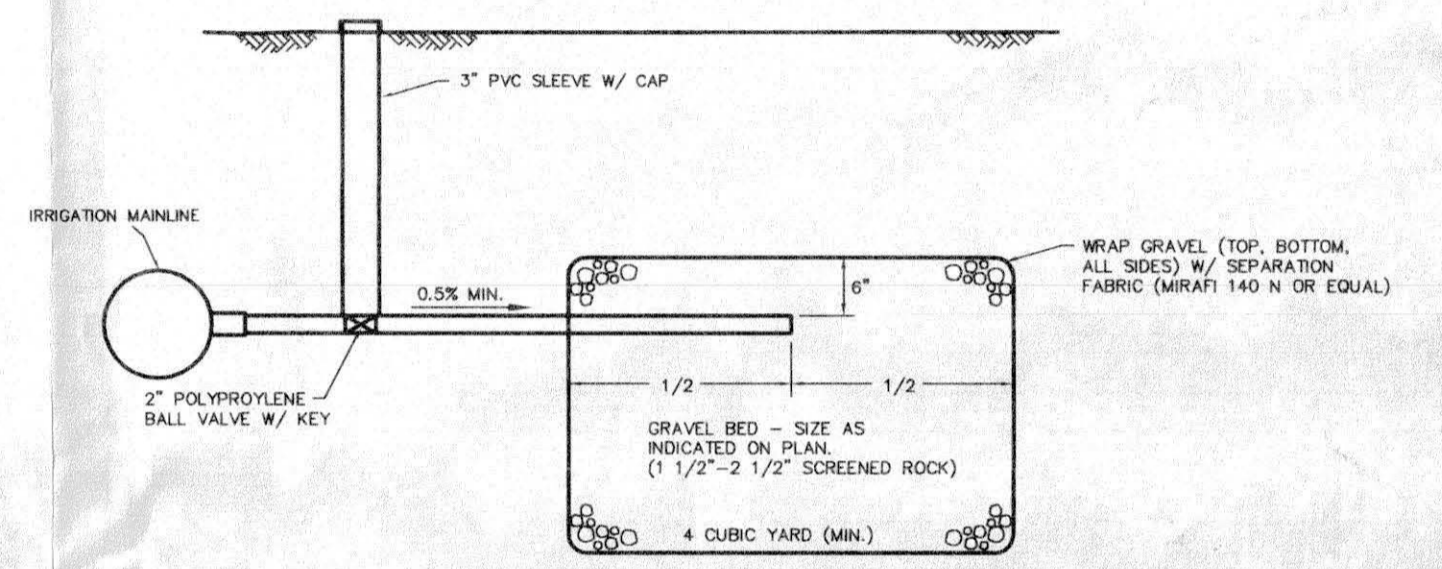
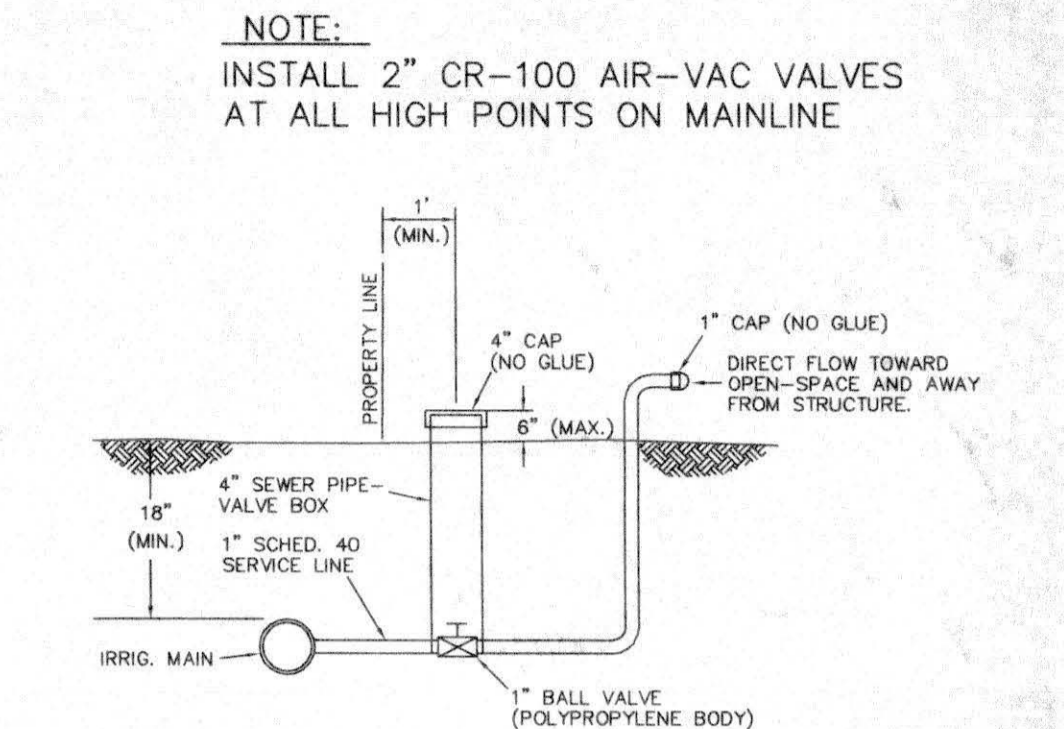
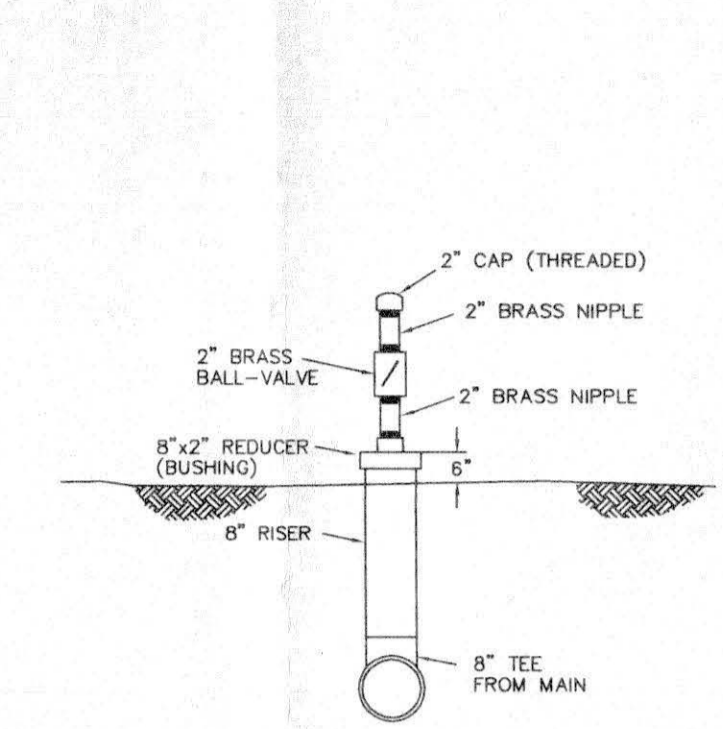
SCALE: 1" = 60'	JOB NO: 400306-02	DATE: 4-09-03
SHEET NO: 18 of 20		



LEGEND

- PROPOSED PRESSURIZED IRRIGATION LINE/RISER/DRAIN VALVE (4" PIP CL 160 MAINS, 2" PIP CL 160 RISER W/GATE VALVE)
- PROPOSED UTILITY SLEEVE
- AIR/VAC (CR-100)
- SUBSURFACE DRAIN W/2" GATE VALVE

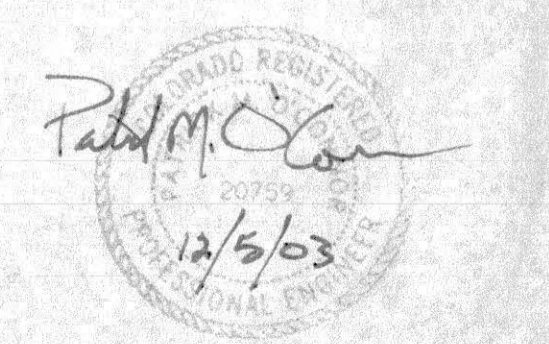
NOTE:
INSTALL 2" CR-100 AIR-VAC VALVES AT ALL HIGH POINTS ON MAINLINE



PROJECT BENCHMARK/CONTROL

MCSM C-N 1/16 COR. SEC. 1
27-1/2 ROAD & CORTLAND AVE.
NORTHING 5001.082
EASTING 8679.160
ELEVATION 4733.98

MCSM C 1/4 COR. SEC. 1
27-1/2 ROAD STA 36+38.90
NORTHING 3680.552
EASTING 8678.783



DRAWN BY: S.G.S.	REVIEWED _____ DATE: _____ FOR _____
DESIGNED BY: P.M.O.	REVIEWED _____ DATE: _____ FOR VISTA ENGINEERING CORP.
CHECKED BY: P.M.O.	

VISTA ENGINEERING CORP.
CONSULTING ENGINEERS AND LAND SURVEYORS
2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81508 • (970) 243-2242

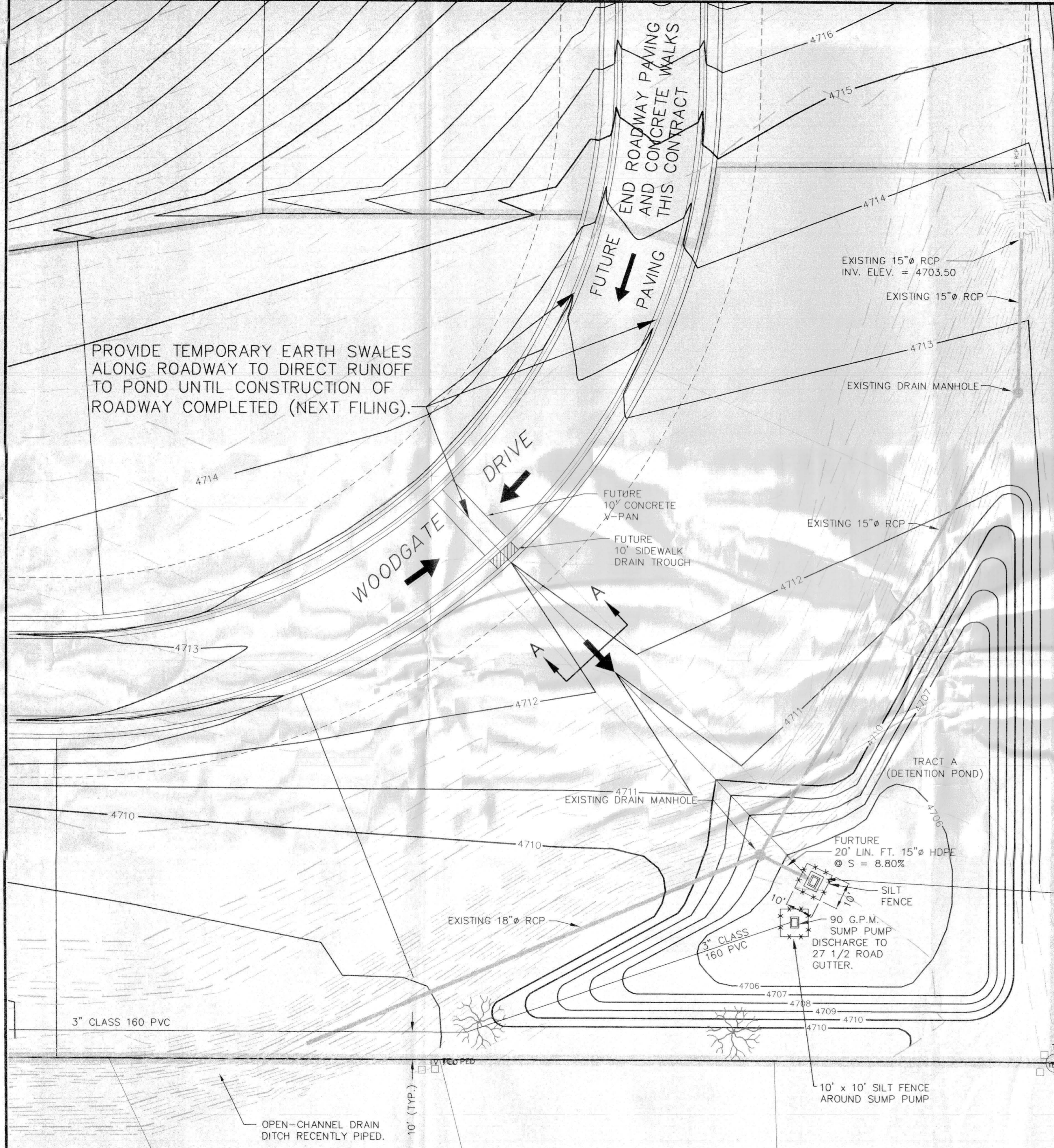
REVISION	DATE	DESCRIPTION	BY	CHD
1	7-14-03	REVISED AS PER 1ST ROUND REVIEW COMMENTS	FJB	PMO

O.P. DEVELOPMENT CO., LLC
GRAND JUNCTION, COLORADO

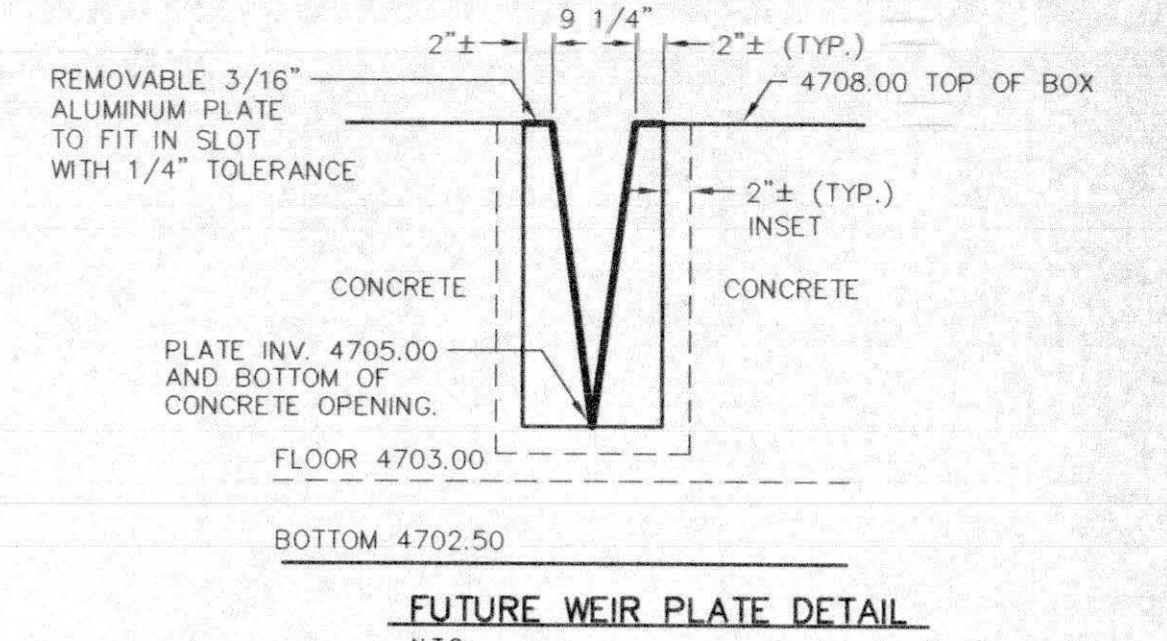
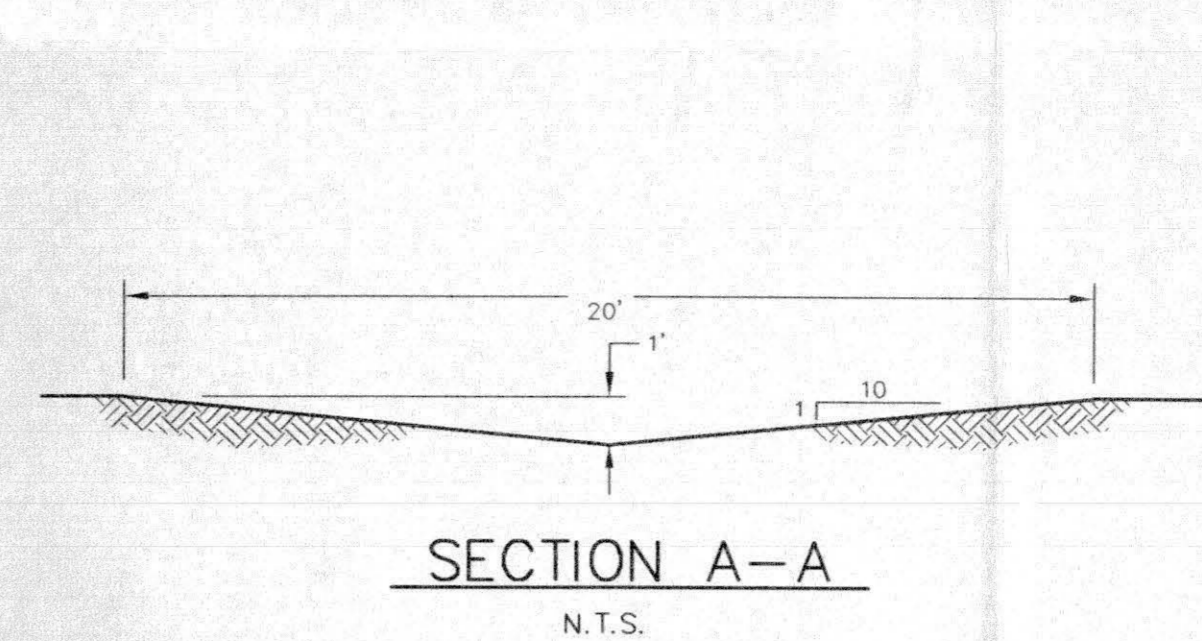
SCALE: 1" = 60'
SHEET NO. 19 of 20

JOB NO: 4003.06.02
DATE: 4-09-03

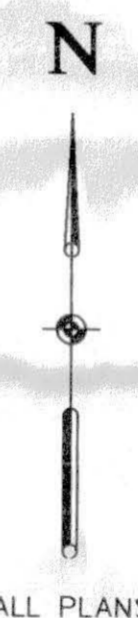
IRRIGATION PLAN
THE KNOLLS SUBDIVISION, FILING 6



LANDSCAPE PLAN - TRACT A
SCALE: 1" = 20'

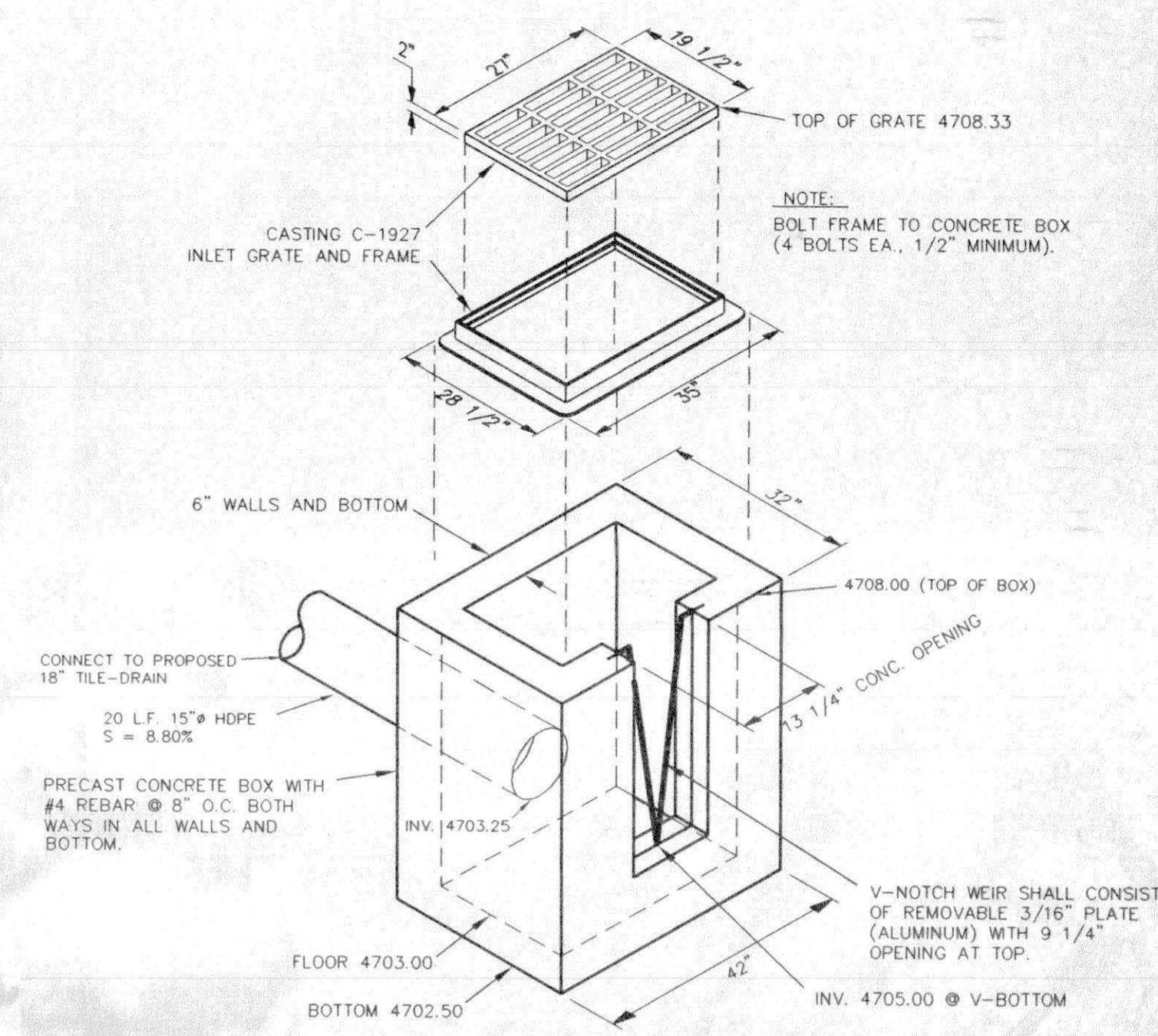


NOTE:
ALL SITE GRADING FOR THIS AND FUTURE FILINGS TO BE COMPLETED AT THIS TIME (INCLUDING CONSTRUCTION OF RETENTION/DETENTION POND).

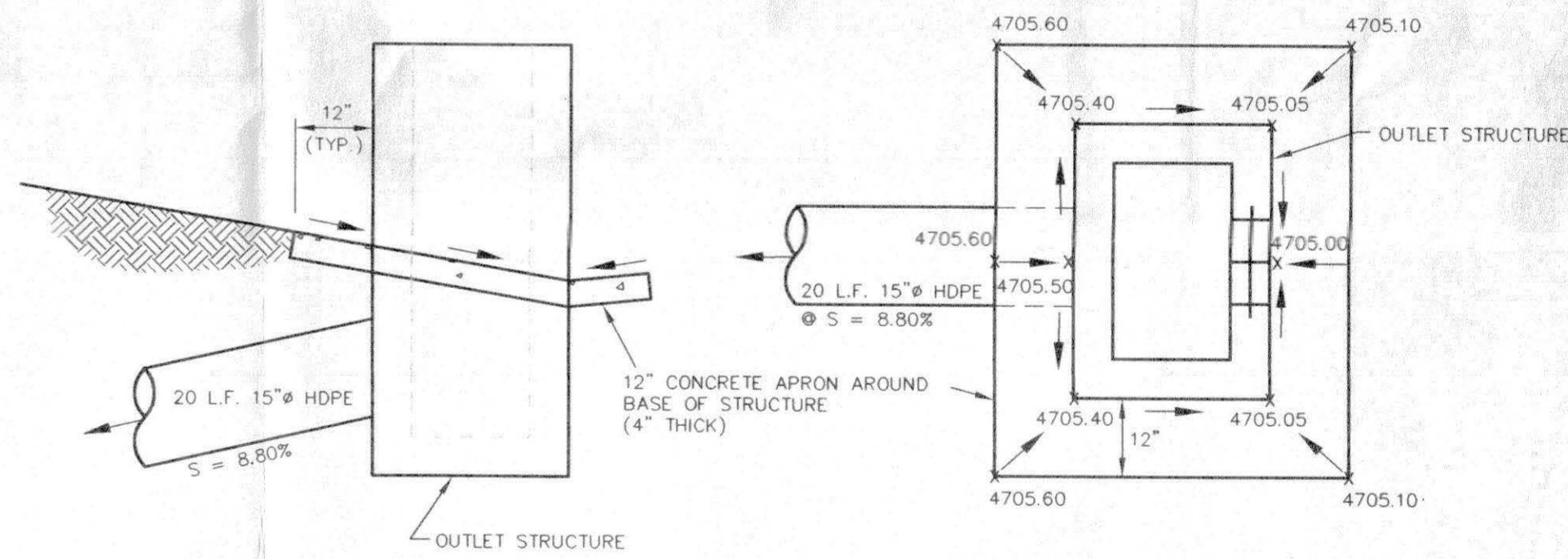


FUTURE OUTLET STRUCTURE (TO BE FINALIZED AND INSTALLED DURING FILING 7)
INV. OUT 4703.25
NORTHING 2868.86
EASTING 9912.33

NOTE:
FILING 7 DETENTION POND SHALL BE UTILIZED AS FILING 6 TEMPORARY RETENTION. INSTALL 90 GPM SUMP-PUMP (WITH TEMPORARY ELECTRICAL POWER) TO DISCHARGE TO 27 1/2 ROAD.



FUTURE CONCRETE OUTLET STRUCTURE
N.T.S.
2 YEAR STORM - W.S. ELEV = 4706.35 Q_{OUT} = 0.85 CFS
100 YEAR STORM - W.S. ELEV = 4708.00 Q_{OUT} = 5.01 CFS



CALL
1-800-922-1987
UTILITY NOTIFICATION
CENTER OF COLORADO

PROJECT BENCHMARK/CONTROL
MCSM C-N 1/16 COR. SEC. 1
27-1/2 ROAD & CORTLAND AVE.
NORTHING 5001.082
EASTING 9679.160
ELEVATION 4733.98

MCSM C 1/4 COR. SEC. 1
27-1/2 ROAD STA 36+38.90
NORTHING 3680.552
EASTING 8678.783

APPROVED FOR CONSTRUCTION:
Robert Davis 10-11-03
CITY COMMUNITY DEVELOPMENT DATE

ACCEPTED AS CONSTRUCTED:
CITY COMMUNITY DEVELOPMENT DATE

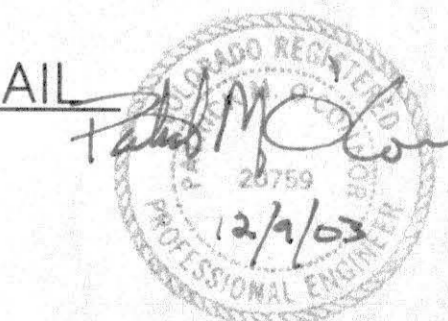
DRAWN BY: S.G.S.	REVIEWED _____ DATE: _____ FOR _____
DESIGNED BY: P.M.O.	REVIEWED _____ DATE: _____ FOR VISTA ENGINEERING CORP.
CHECKED BY: P.M.O.	

VISTA ENGINEERING CORP.
CONSULTING ENGINEERS AND LAND SURVEYORS
2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81608 • (970) 243-2242

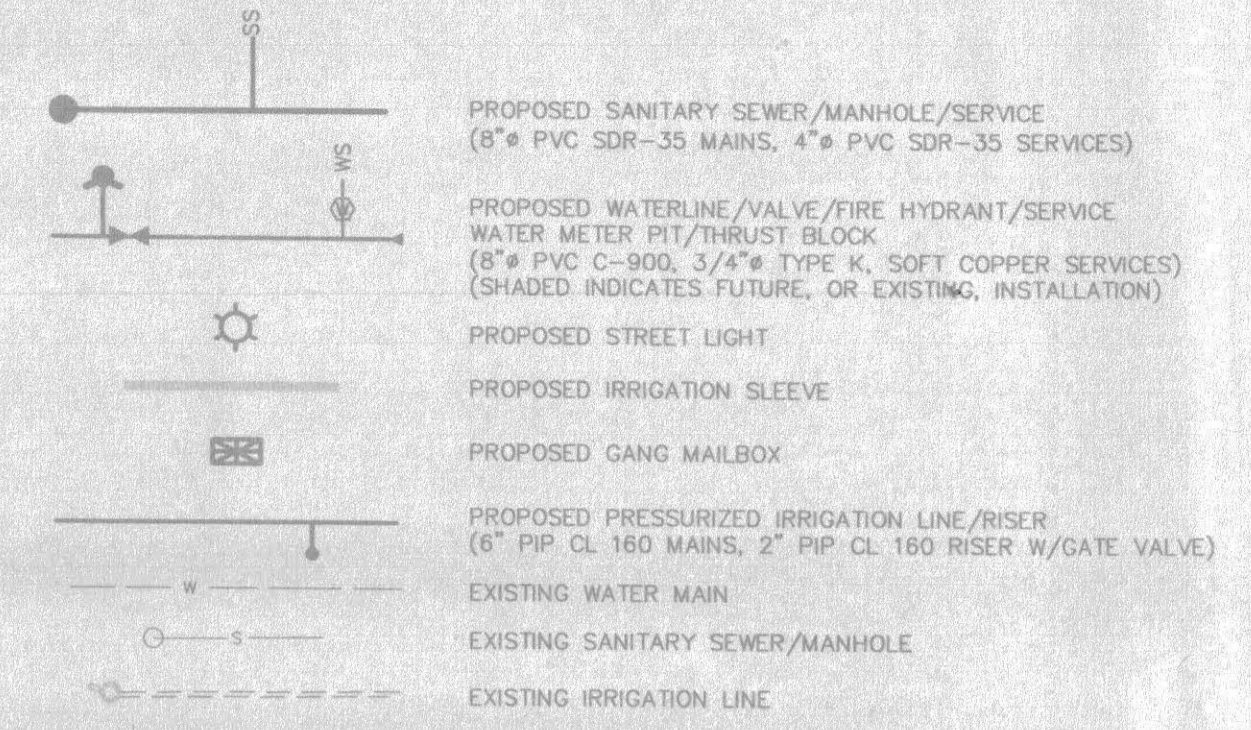
REVISION	DATE	DESCRIPTION	BY	CH'D
1	12-09-03	DETENTION UTILIZED AS TEMPORARY RETENTION	SGS	PMO

O.P. DEVELOPMENT CO., LLC
GRAND JUNCTION, COLORADO
SCALE: AS SHOWN
JOB NO: 4003.06-02
DATE: 4-09-03
SHEET NO: 20 of 20

POND GRADING DETAILS
THE KNOLLS SUBDIVISION, FILING 6



LEGEND



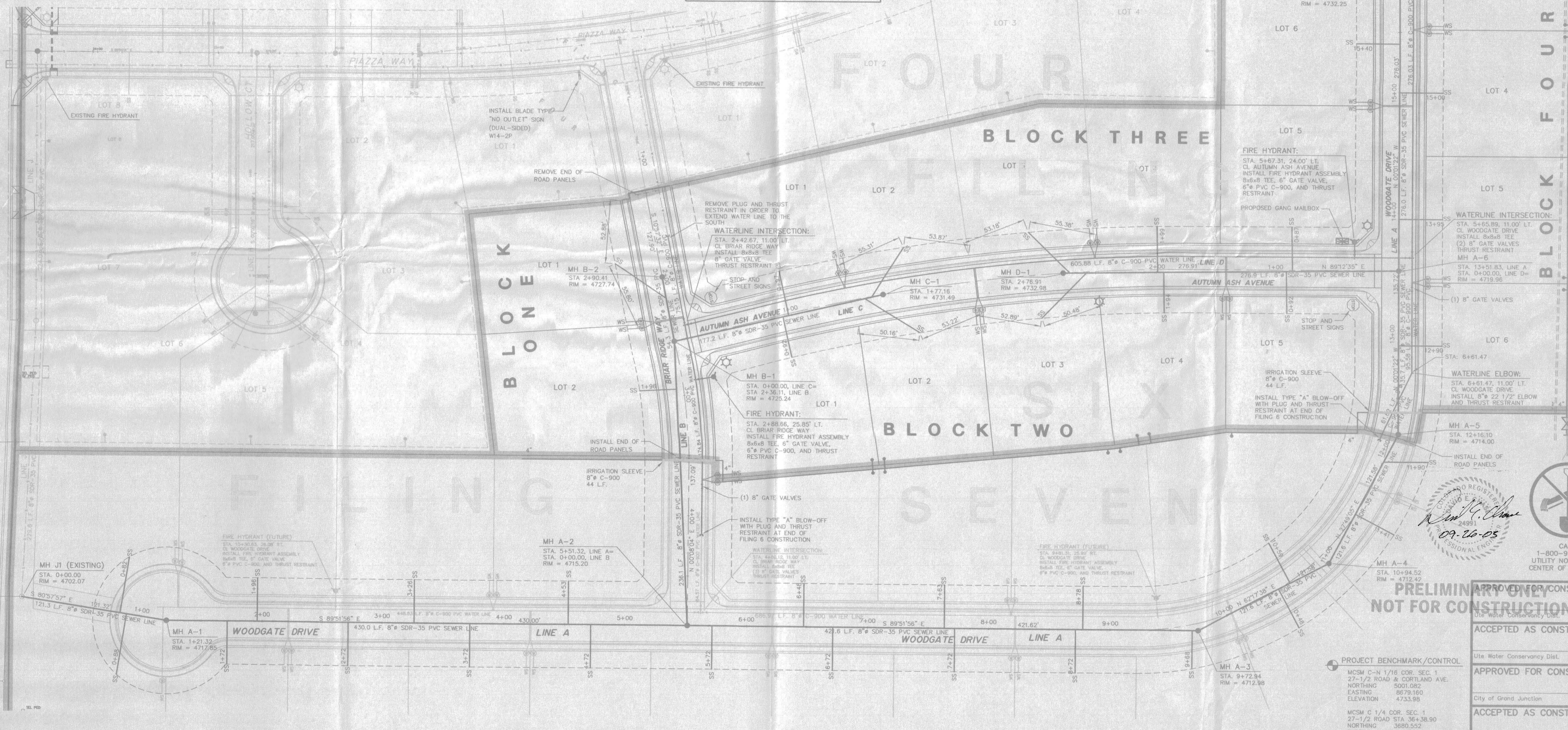
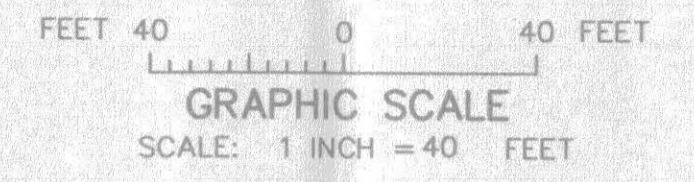
UTILITY VENDORS

- SANITARY SEWER City of Grand Junction
- DOMESTIC WATER Ute Water Conservancy District
- NATURAL GAS Public Service Co. of Colorado
- ELECTRIC Public Service Co. of Colorado
- TELEPHONE US West Communications
- TELEVISION TO Cablevision
- IRRIGATION Grand Valley Water Users Assoc.
- DRAINAGE Grand Valley Water Users Assoc.

NOTE:

1. ALL EXTERIOR LIGHTING MUST BE DOWNWARD DIRECTIONAL AND LIGHTING ELEMENTS MUST BE CHOSEN TO REDUCE OR ELIMINATE ANY POSSIBLE GLARE THAT MIGHT AFFECT AIRCRAFT OPERATIONS.
2. CITY TRAFFIC OPERATIONS SUPERVISOR TO BE CONTACTED (970) 244-1573 PRIOR TO ANY SIGNING MATERIAL ORDER OR INSTALLATION.

NOTE:
CITY TRAFFIC OPERATIONS SUPERVISOR TO BE CONTACTED (970/244-1573) PRIOR TO ANY SIGNING MATERIAL ORDER OR INSTALLATION.



PROFESSIONAL ENGINEER
 24991
 09-26-05
 CALL 1-800-922-1987
 UTILITY NOTIFICATION
 CENTER OF COLORADO

PRELIMINARY ONLY
NOT FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION:	Date
ACCEPTED AS CONSTRUCTED:	Date
APPROVED FOR CONSTRUCTION:	Date
ACCEPTED AS CONSTRUCTED:	Date

PROJECT BENCHMARK/CONTROL
 MCSM C-N 1/16 COR. SEC. 1
 27-1/2 ROAD & CORTLAND AVE.
 NORTHING 5001.082
 EASTING 8679.160
 ELEVATION 4733.98

MCSM C 1/4 COR. SEC. 1
 27-1/2 ROAD STA 36+38.90
 NORTHING 3680.552
 EASTING 8678.783

DRAWN BY: S.G.S.	REVIEWED _____ DATE: _____ FOR _____
DESIGNED BY: P.M.O.	REVIEWED _____ DATE: _____ FOR VISTA ENGINEERING CORP.
CHECKED BY: P.M.O.	

VISTA ENGINEERING CORP.
 CONSULTING ENGINEERS AND LAND SURVEYORS
 2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81608 • (970) 243-2242

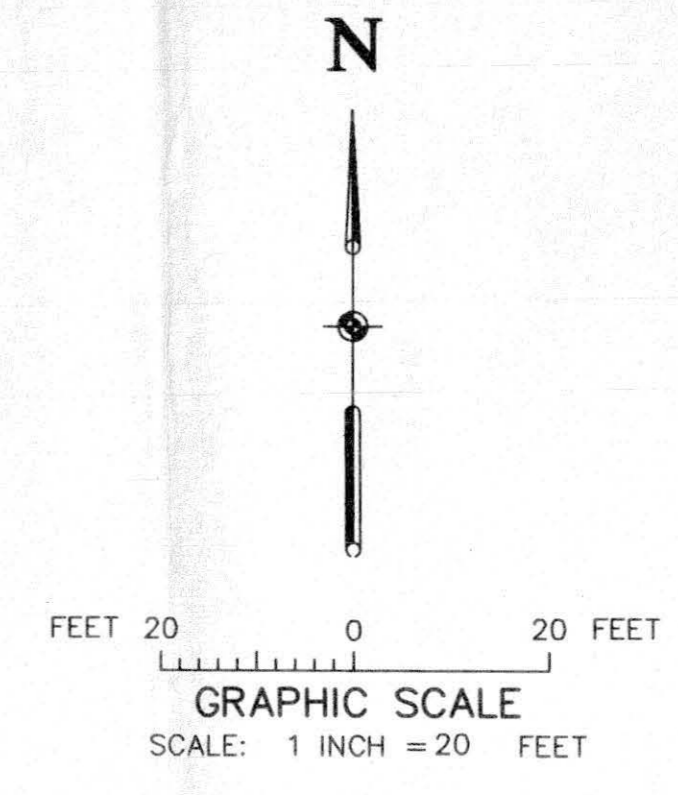
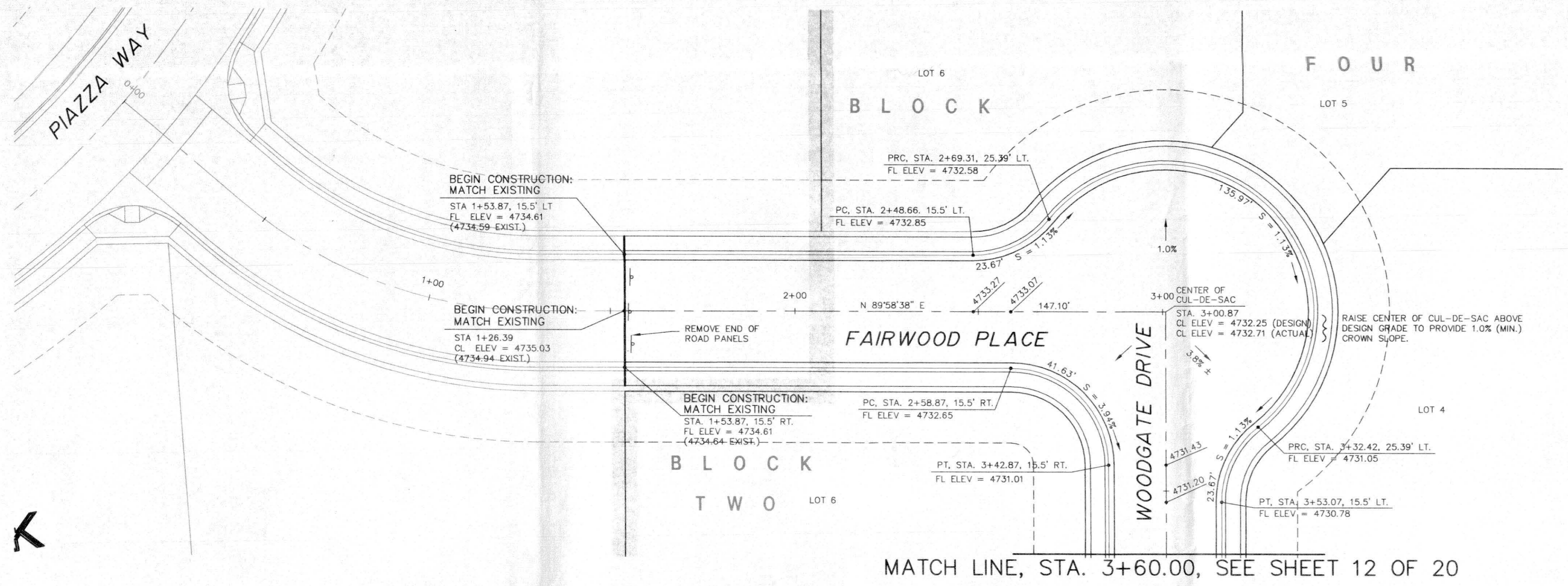
REVISION	DATE	DESCRIPTION	BY	CHK'D
1	7-14-03	REVISED AS PER 1ST ROUND REVIEW COMMENTS	SGS	PMO
2	9-26-03	REVISED AS PER 2ND ROUND REVIEW COMMENTS	FJB	PMO

O.P. DEVELOPMENT CO., LLC

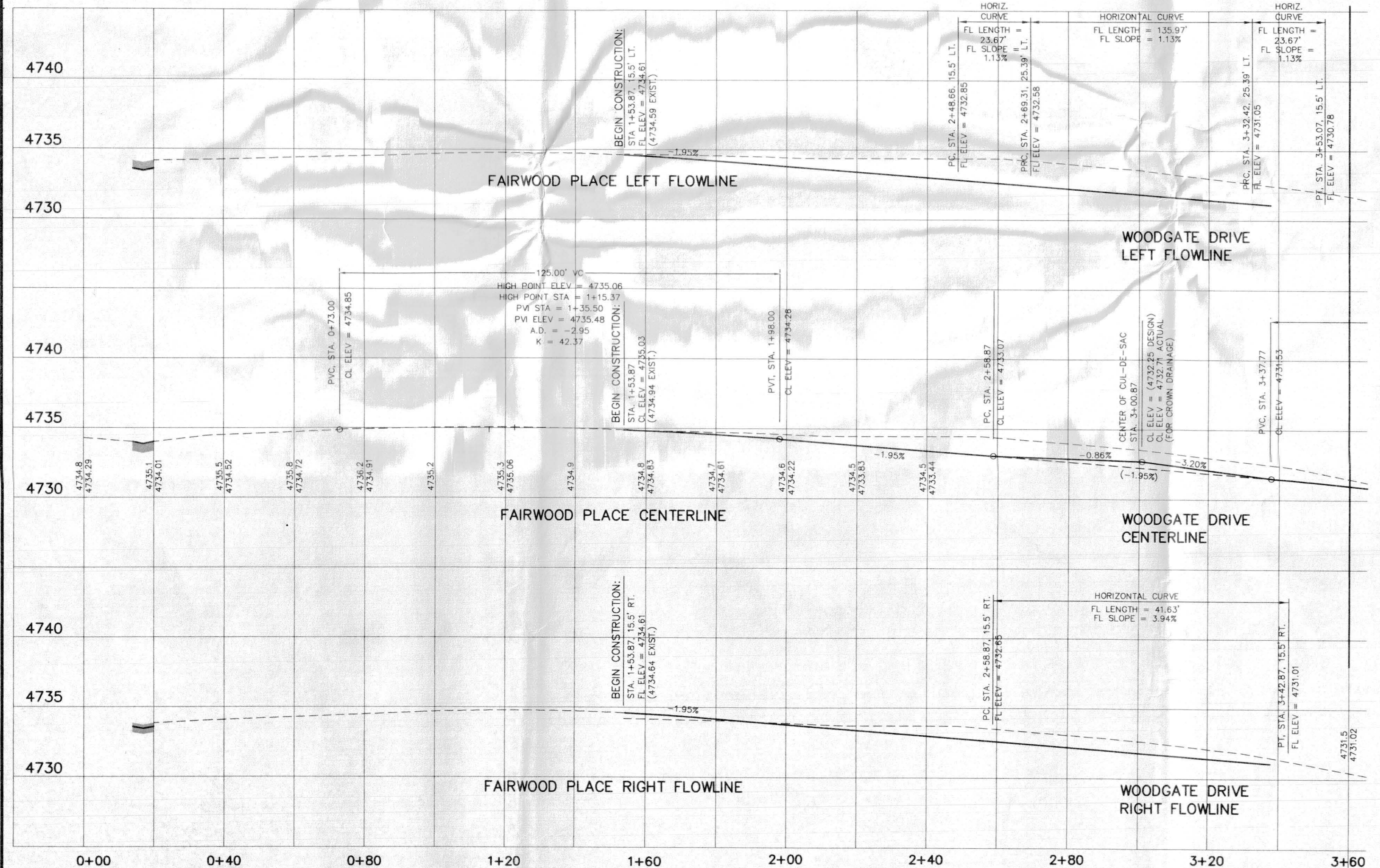
UTILITY COMPOSITE
 THE KNOLLS, FILING SIX

GRAND JUNCTION, COLORADO

SCALE:	JOB NO:	DATE:
1" = 40'	4003.06-02	4-09-03
SHEET NO:	5 of 20	



MATCH LINE, STA. 3+60.00, SEE SHEET 12 OF 20



MATCH LINE, STA. 3+60.00, SEE SHEET 12 OF 20

NOTE:
CONTRACTOR SHALL VERIFY EXISTENCE OF "BIKE LANE" STRIPING ALONG EAST-SIDE OF 27 1/2 ROAD AND PROVIDE SUCH IF NOT EXISTING (WITHIN LIMITS OF KNOLLS PROJECT FRONTAGE)

ALL AREAS OF ROAD CONSTRUCTION SHALL BE STRIPPED OF ALL TOPSOIL. IT IS ANTICIPATED THAT THE DEPTH OF THE TOPSOIL WILL RANGE BETWEEN 6" AND 24". WHERE DEPTH EXCEEDS THE PAVEMENT SECTION, STRUCTURAL FILL, CONSISTING OF APPROVED NATIVE OR IMPORTED MATERIAL SHALL BE PLACED TO SUBGRADE ELEVATION. STRUCTURAL FILL TO BE COMPACTED TO A MINIMUM OF 95% OF MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR, ASTM D-698.



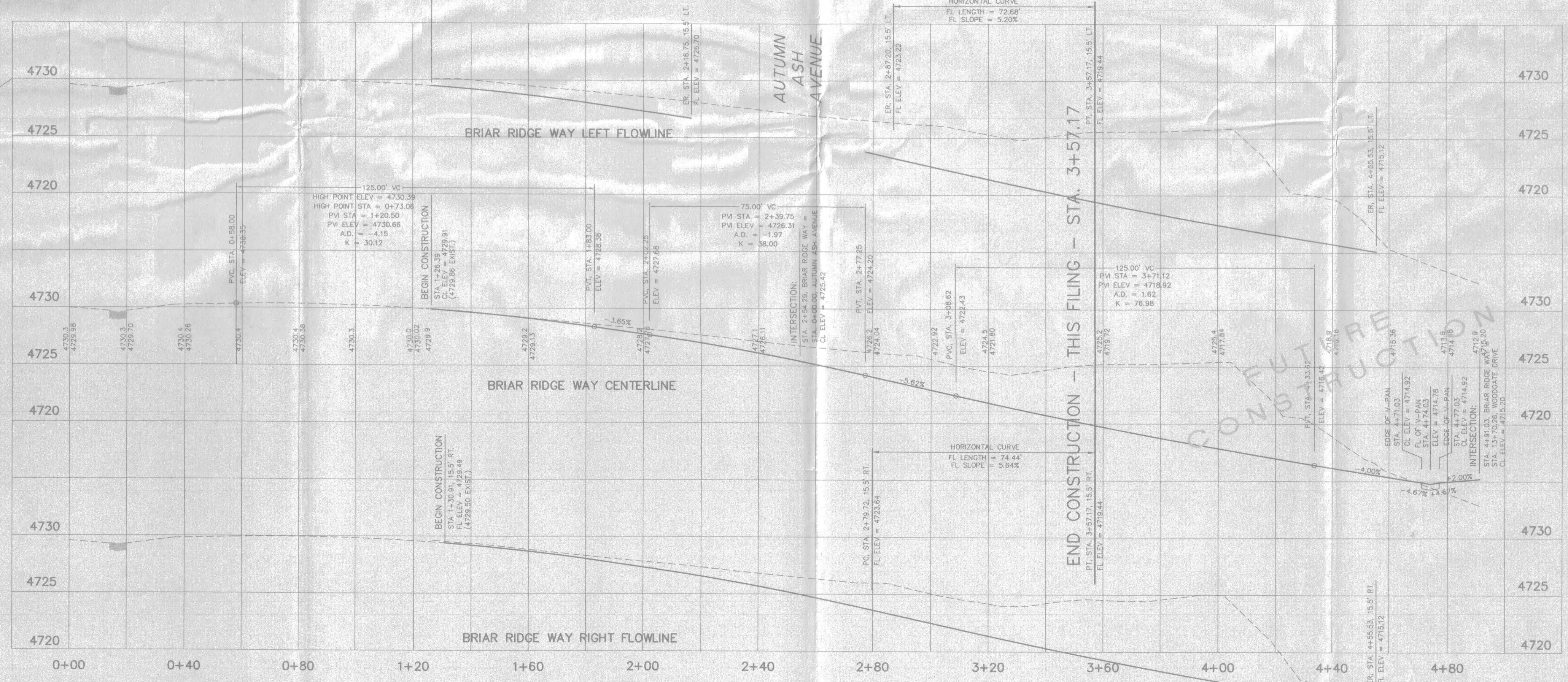
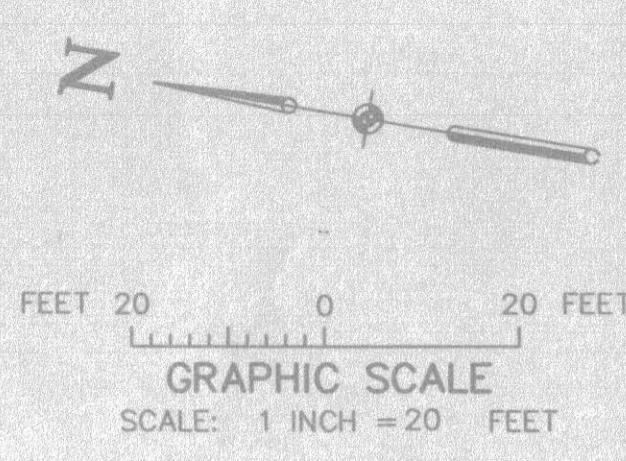
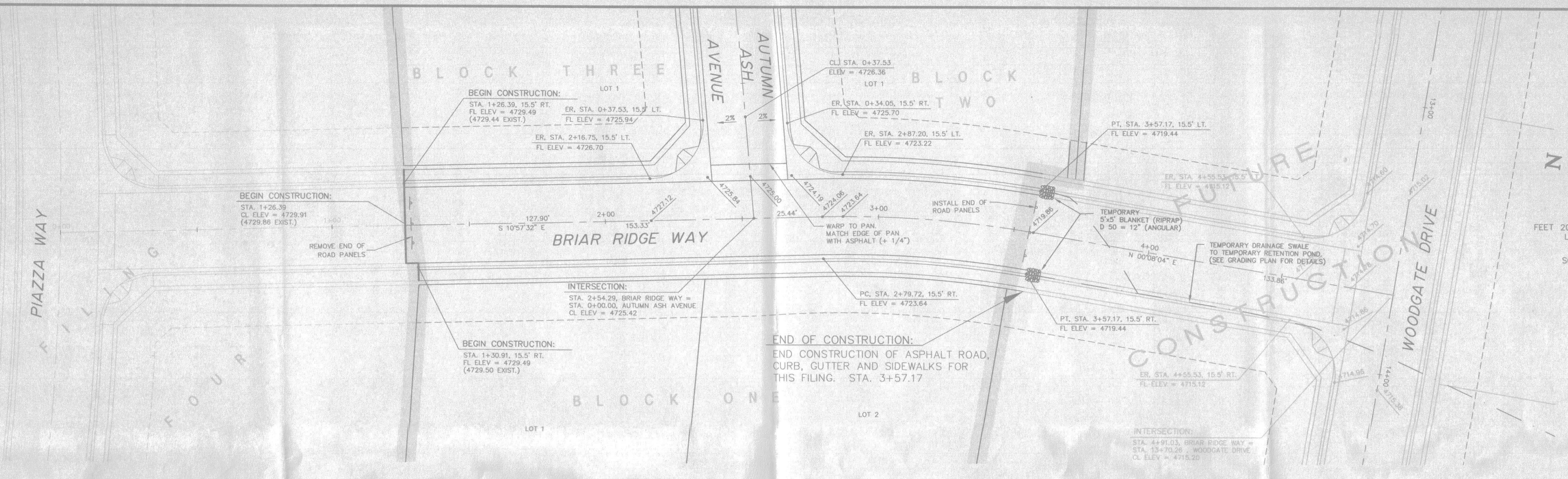
DRAWN BY: S.G.S.	REVIEWED DATE: _____ FOR _____
CHECKED BY: P.M.O.	REVIEWED DATE: _____ FOR VISTA ENGINEERING CORP.

VISTA ENGINEERING CORP.
CONSULTING ENGINEERS AND LAND SURVEYORS
2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81508 • (970) 243-2242

REVISION	DATE	DESCRIPTION	BY	CHKD
1	7-14-03	REVISED AS PER 1ST ROUND REVIEW COMMENTS	FJB	PMO

O.P. DEVELOPMENT CO., LLC
GRAND JUNCTION, COLORADO
FAIRWOOD PLACE AND WOODGATE DRIVE
PLAN AND PROFILE (STA. 0+00 TO 3+60)
THE KNOLLS SUBDIVISION, FILING SIX

APPROVED FOR CONSTRUCTION <i>Paul M. Olin</i> CITY OF GRAND JUNCTION DATE 12/11/03	
ACCEPTED AS CONSTRUCTED	
CITY OF GRAND JUNCTION DATE _____	Project No: 4003.06-02
SCALE: Horiz: 1" = 20' Vert: 1" = 5'	SHEET NO: 11 of 20
DATE: 4-09-03	



PRELIMINARY ONLY
NOT FOR CONSTRUCTION

ALL AREAS OF ROAD CONSTRUCTION SHALL BE STRIPPED OF ALL TOPSOIL. IT IS ANTICIPATED THAT THE DEPTH OF THE TOPSOIL WILL RANGE BETWEEN 5" AND 24" WHERE DEPTH EXCEEDS THE PAVEMENT SECTION. STRUCTURAL FILL, CONSISTING OF APPROVED NATIVE OR IMPORTED MATERIAL SHALL BE PLACED TO SUBGRADE ELEVATION. STRUCTURAL FILL TO BE COMPACTED TO A MINIMUM OF 95% OF MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR, ASTM D-698.

DRAWN BY: S.G.S.
 REVIEWED: _____
 DATE: _____ FOR _____
 CHECKED BY: P.M.O.
 DATE: _____ FOR VISTA ENGINEERING CORP.

VISTA ENGINEERING CORP.
 CONSULTING ENGINEERS AND LAND SURVEYORS
 2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81606 • (970) 243-2242

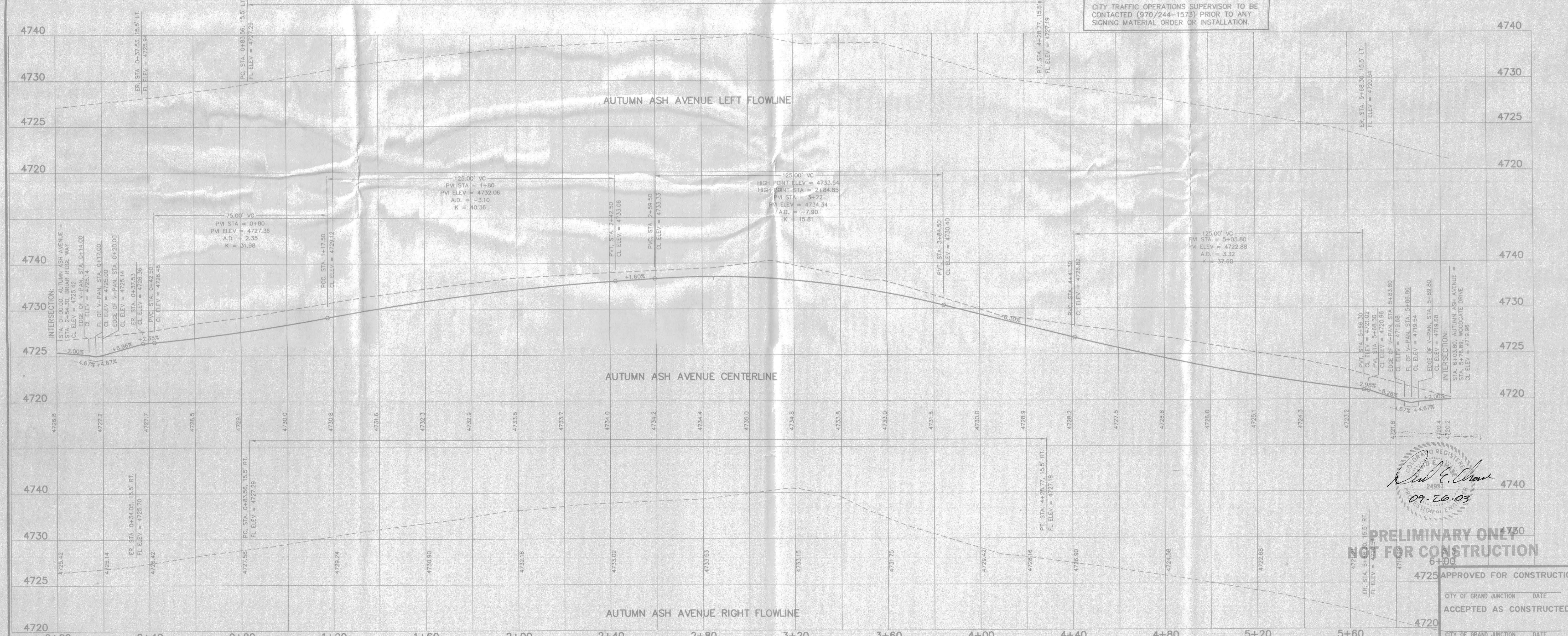
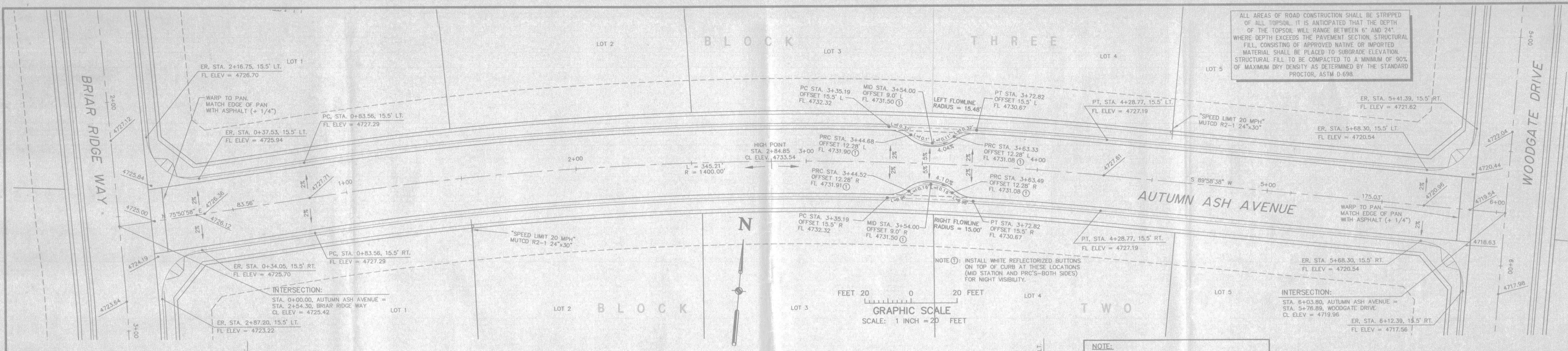
REVISION	DATE	DESCRIPTION	BY	CHK'D
1	7-14-03	REVISED AS PER 1ST ROUND REVIEW COMMENTS	FJR	PMO
2	9-26-03	REVISED AS PER 2ND ROUND REVIEW COMMENTS	SGS	PMO

O.P. DEVELOPMENT CO., LLC
 GRAND JUNCTION, COLORADO
BRIAR RIDGE WAY PLAN AND PROFILE
THE KNOLLS SUBDIVISION, FILING SIX

APPROVED FOR CONSTRUCTION	CITY OF GRAND JUNCTION	DATE
ACCEPTED AS CONSTRUCTED	CITY OF GRAND JUNCTION	DATE
SCALE: Horiz: 1" = 20'	Project No:	4003.06-02
Ver: 1" = 5'	SHEET NO:	15 of 20
DATE: 4-09-03		

03-078

ALL AREAS OF ROAD CONSTRUCTION SHALL BE STRIPPED OF ALL TOPSOIL. IT IS ANTICIPATED THAT THE DEPTH OF THE TOPSOIL WILL RANGE BETWEEN 6" AND 24". WHERE DEPTH EXCEEDS THE PAVEMENT SECTION, STRUCTURAL FILL CONSISTING OF APPROVED NATIVE OR IMPORTED MATERIAL SHALL BE PLACED TO SUBGRADE ELEVATION. STRUCTURAL FILL TO BE COMPACTED TO A MINIMUM OF 90% OF MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR, ASTM D-698.



Professional Engineer Seal: *David E. Shaw*, No. 2493, State of Colorado. Date: 09-20-03.

PRELIMINARY ONLY
NOT FOR CONSTRUCTION

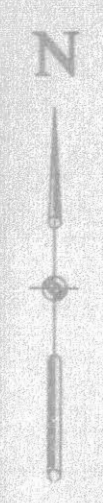
APPROVED FOR CONSTRUCTION
CITY OF GRAND JUNCTION DATE
ACCEPTED AS CONSTRUCTED

DRAWN BY: S.G.S.	REVIEWED DATE: _____ FOR _____
CHECKED BY: P.M.O.	REVIEWED DATE: _____ FOR VISTA ENGINEERING CORP.

VISTA ENGINEERING CORP.
CONSULTING ENGINEERS AND LAND SURVEYORS
2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81608 • (970) 243-2242

REVISION	DATE	DESCRIPTION	BY	CHD
1	7-14-03	REVISED AS PER 1ST ROUND REVIEW COMMENTS	SGS	PMO
2	9-26-03	REVISED AS PER 2ND ROUND REVIEW COMMENTS	SGS	PMO

O.P. DEVELOPMENT CO., LLC		GRAND JUNCTION, COLORADO	
AUTUMN ASH AVENUE PLAN AND PROFILE THE KNOLLS SUBDIVISION, FILING SIX			
SCALE: Horiz: 1" = 20' Vert: 1" = 5'	Project No: 4003.06-02	DATE: 4-09-03	SHEET NO: 16 of 20



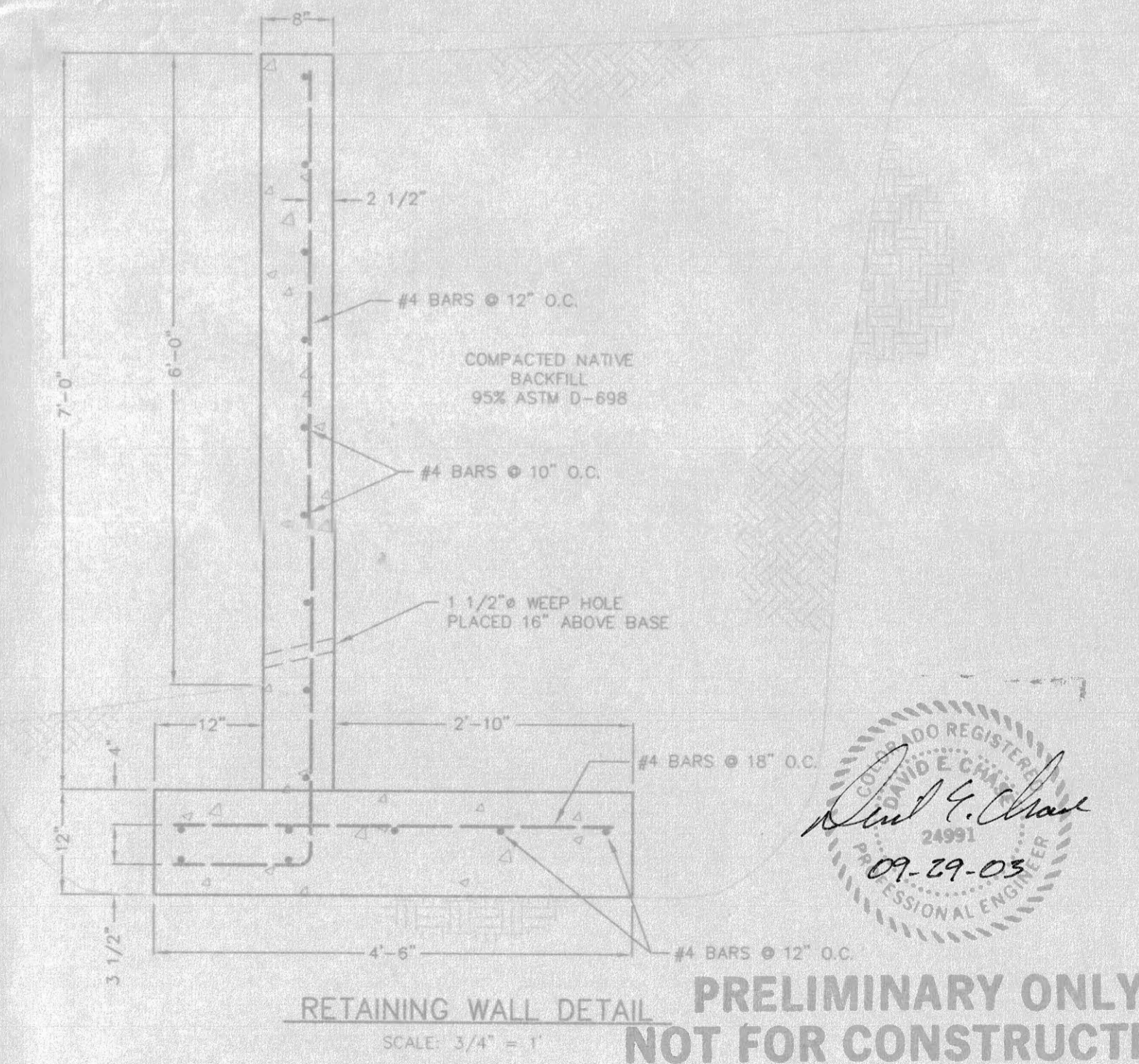
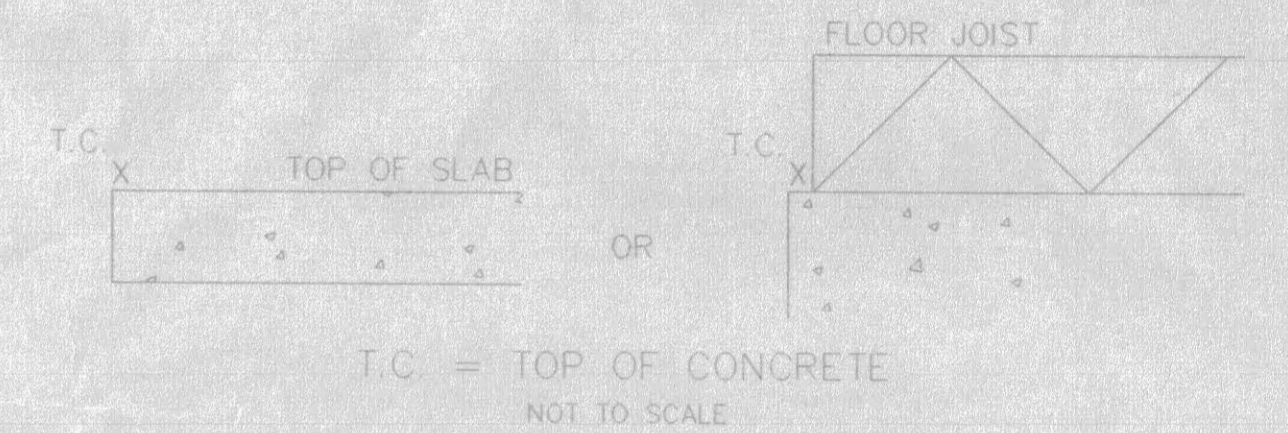
- GENERAL NOTES:**
- CONSTRUCTION STAGING AREAS WILL BE THE UNDEVELOPED LOTS THAT MAKE UP THE LOTS. NO STAGING AREAS WILL BE PERMITTED ON ANY ADJACENT PROPERTIES.
 - ELEVATE EXISTING OVERFLOW SWALE (INVERT) TO ELEV. 4722.12 (FROM 4722.0± EXISTING).
 - SITE TOPSOIL IS NOT SUITABLE FOR SUPPORT OF PROPOSED CONSTRUCTION. TOPSOIL SHALL BE STRIPPED FROM ALL FILL AREAS AND STRUCTURAL PAD AREAS AND STOCKPILED FOR USE ON FINAL OVERLOT GRADING.

FEET 60 0 60 FEET
GRAPHIC SCALE
 SCALE: 1 INCH = 60' FEET

**KNOLLS SUBDIVISION
 TOP OF CONCRETE ELEVATION TABULATION
 9/26/03**

LOT	BLOCK	ADDRESS	(MINIMUM) T.C. ELEV.	(MAXIMUM) T.C. ELEV.
1	1	BRIAR RIDGE WAY	4728.0	4731.0
2	1	BRIAR RIDGE WAY	4722.0	4727.0
1	2	AUTUMN ASH AVENUE	4721.0	4732.5
1	2	BRIAR RIDGE WAY	4721.0	4732.5
2	2	AUTUMN ASH AVENUE	4731.5	4735.5
2	2	AUTUMN ASH AVENUE	4733.0	4736.0
4	2	AUTUMN ASH AVENUE	4726.5	4734.0
4	2	AUTUMN ASH AVENUE	4715.0	4727.5
5	2	WOODGATE DRIVE	4715.0	4727.5
1	3	AUTUMN ASH AVENUE	4728.0	4732.0
1	3	BRIAR RIDGE WAY	4728.0	4732.0
1	3	AUTUMN ASH AVENUE	4732.0	4735.0
3	3	AUTUMN ASH AVENUE	4733.5	4736.0
4	3	AUTUMN ASH AVENUE	4727.0	4734.0
5	3	AUTUMN ASH AVENUE	4722.0	4729.0
5	3	WOODGATE DRIVE	4722.0	4729.0
6	3	WOODGATE DRIVE	4729.0	4736.0
6	3	FAIRWOOD PLACE	4729.0	4736.0
1	4	FAIRWOOD PLACE	4734.0	4736.0
2	4	FAIRWOOD PLACE	4733.5	4735.5
3	4	WOODGATE DRIVE	4731.5	4734.5
4	4	WOODGATE DRIVE	4726.5	4732.5
5	4	WOODGATE DRIVE	4720.5	4727.5
6	4	WOODGATE DRIVE	4716.0	4720.5

NOTE:
 MINIMUM T.C. ELEVATIONS MUST BE 12" (MINIMUM) ABOVE THE BACK-OF-WALK ELEVATION PERPENDICULAR TO THE FOUNDATION TO CREATE POSITIVE DRAINAGE TO THE STREET AND AWAY FROM FOUNDATION. MAXIMUM T.C. ELEVATIONS MUST NOT CREATE DRIVEWAY SLOPES IN EXCESS OF ALLOWABLE MAXIMUMS OR SIDE-SLOPES AWAY FROM FOUNDATIONS IN EXCESS OF 3:1 (HORIZ. VERT). THE WIDE RANGE OF ELEVATIONS IS NECESSARY, AT THIS TIME, DUE TO UNCERTAINTY IN FINAL BUILDING LOCATIONS.

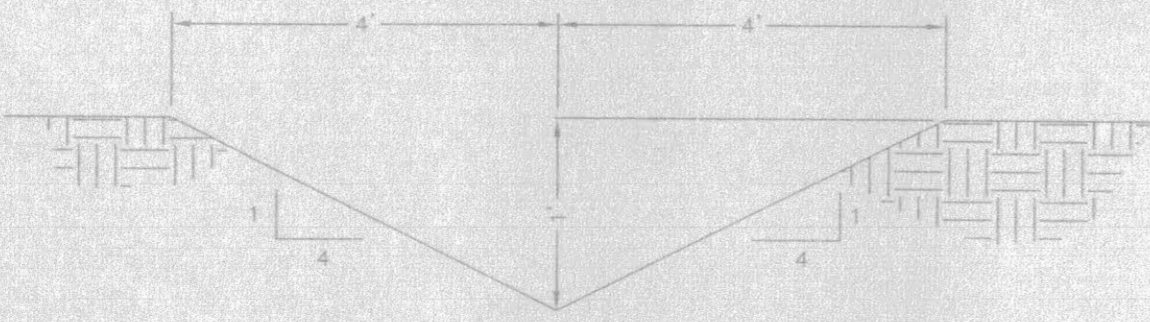


**PRELIMINARY ONLY
 NOT FOR CONSTRUCTION**

Professional Engineer Seal: David E. Char, 1999, 09-29-03

TOP OF WALL 4723.0 @ HIGH-POINT
 F.G. = 4718.0 @ SAME LOCATION
 THEREFORE 5' RETAINING WALL (MAX.)

TOP OF WALL 4722.0 @ HIGH-POINT
 F.G. = 4716.0 @ SAME LOCATION
 THEREFORE 6' RETAINING WALL (MAX.)



NOTE: RUNOFF TO TEMPORARILY BE ROUTED TO RETENTION POND IN SOUTHWEST CORNER OF SITE (FUTURE FILING 7). PROVIDE SWALE (SEE SECTION A-A) FROM END OF FILING 6 ROADWAYS TO EXISTING NATURAL BERM NORTH OF DRAIN "D".

EXISTING DRAIN "D"

LEGEND

- CONTOUR (EXISTING)
- CONTOUR (PROPOSED)
- FILING BOUNDARY
- DRAINAGE DIRECTION

PROJECT BENCHMARK/CONTROL

- MCSM C-M 1/16 COR. SEC. 1, 27-1/2 ROAD & CORTLAND AVE. NORTHING 5001.082, EASTING 8679.160, ELEVATION 4733.98
- MCSM C 1/4 COR. SEC. 1, 27-1/2 ROAD STA. 58+38.90 NORTHING 3680.552, EASTING 8678.783

APPROVED FOR CONSTRUCTION:

CITY DEVELOPMENT ENGINEER DATE

ACCEPTED AS CONSTRUCTED:

CITY DEVELOPMENT ENGINEER DATE

DRAWN BY: S.G.S.
 DESIGNED BY: P.M.O.
 CHECKED BY: P.M.O.

REVIEWED: _____ FOR _____
 DATE: _____

REVIEWED: _____ FOR VISTA ENGINEERING CORP.
 DATE: _____

VISTA ENGINEERING CORP.
 CONSULTING ENGINEERS AND LAND SURVEYORS
 2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81608 • (970) 243-2242

REVISION	DATE	DESCRIPTION	BY	CHKD
1	7-14-03	REVISED AS PER 1ST ROUND REVIEW COMMENTS	SGS	PMO
2	9-26-03	REVISED T.C. ELEVATIONS AS PER 2ND ROUND REVIEW COMMENTS	FJB	PMO

O.P. DEVELOPMENT CO., LLC

**GRADING PLAN
 THE KNOLLS SUBDIVISION, FILING 6**

GRAND JUNCTION, COLORADO
 SCALE: 1" = 60'
 JOB NO: 4003-06-02
 DATE: 4-09-03

SHEET NO. 17 of 20

03-078

GENERAL NOTES:

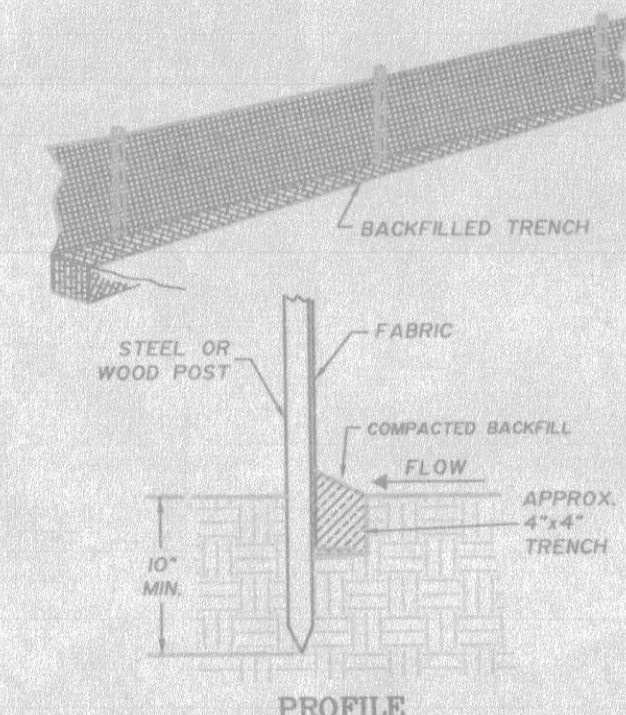
- CONSTRUCTION STAGING AREAS WILL BE THE UNDEVELOPED LOTS THAT MAKE UP THE LOTS. NO STAGING AREAS WILL BE PERMITTED ON ANY ADJACENT PROPERTIES.
- SITE TOPSOIL IS NOT SUITABLE FOR SUPPORT OF PROPOSED CONSTRUCTION. TOPSOIL SHALL BE STRIPPED FROM ALL FILL AREAS AND STRUCTURAL PAD AREAS AND STOCKPILED FOR USE ON FINAL OVERLOT GRADING.

STORMWATER MANAGEMENT NOTES:

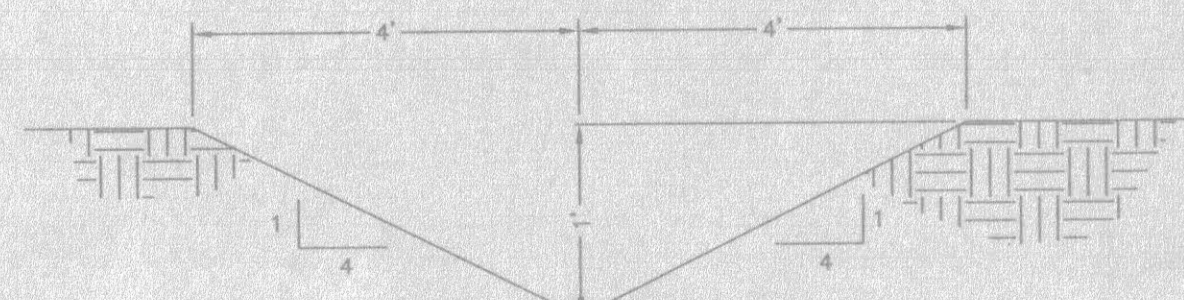
- AT ALL TIMES DURING CONSTRUCTION, EROSION AND SEDIMENT CONTROL SHALL BE MAINTAINED BY THE DEVELOPER OR HIS DESIGNATED REPRESENTATIVE.
- EROSION CONTROL SYSTEM SHALL BE INSTALLED AS GRADING PROGRESSES.
- EROSION BALES SHALL BE STRAW OR HAY, DEPENDING ON AVAILABILITY.
- DETAILS SHOWN ARE SCHEMATIC ONLY. ADJUST AS NECESSARY TO FIT FIELD CONDITIONS.
- EROSION BALES SHALL BE PLACED TO AVOID RUNOFF FLOWING BETWEEN, AROUND OR UNDER BALES. BALES SHALL BE ANCHORED WITH 2" X 2" X 4' WOODEN STAKES OR #4 REINFORCING BARS, TWO PER BALE (SEE DETAILS FOR FURTHER INSTRUCTIONS).
- NEGATIVE IMPACTS TO DOWNSTREAM AREAS (OR RECEIVING WATERS) CAUSED BY THE OVERLOT GRADING TO BE MONITORED AND CORRECTED BY THE DEVELOPER.
- MULCH SHALL BE APPLIED TO ACHIEVE A STUBBLED SURFACE TO THE DESIGNATED AREAS TO PREVENT DUST AND AID IN LIMITING WIND EROSION. CONTRACTOR SHALL HAVE A WATER TRUCK MADE AVAILABLE TO ASSIST IN CONTROLLING DUST AND WIND EROSION.
- CONSTRUCTION TRAFFIC ENTRANCES SHALL BE CLEANED ON A CONTINUAL BASIS DURING OVERLOTING AND DURING THE DURATION HOME CONSTRUCTION.
- MAINTENANCE OF THE STORMWATER MANAGEMENT FACILITIES SHALL BE THE RESPONSIBILITY OF THE HOMEOWNERS. RECORDS OF SUCH MAINTENANCE SHALL BE RETAINED BY THE H.O.A.

LEGEND

- CONTOUR (EXISTING)
- CONTOUR (PROPOSED)
- BASIN BOUNDARY
- DRAINAGE DIRECTION
- SILT-FENCE



DETAIL B - SILT FENCE
N.T.S.



SECTION A-A TEMPORARY SWALE
N.T.S.

PRELIMINARY ONLY NOT FOR CONSTRUCTION
PROJECT BENCHMARK/CONTROL

MCSM C-N 1/16 COR. SEC. 1
27-1/2 ROAD & CORTLAND AVE.
NORTHING 5001.082
EASTING 8879.160
ELEVATION 4733.98

MCSM C 1/4 COR. SEC. 1
27-1/2 ROAD STA 361+38.90
NORTHING 3680.552
EASTING 8678.783

APPROVED FOR CONSTRUCTION:

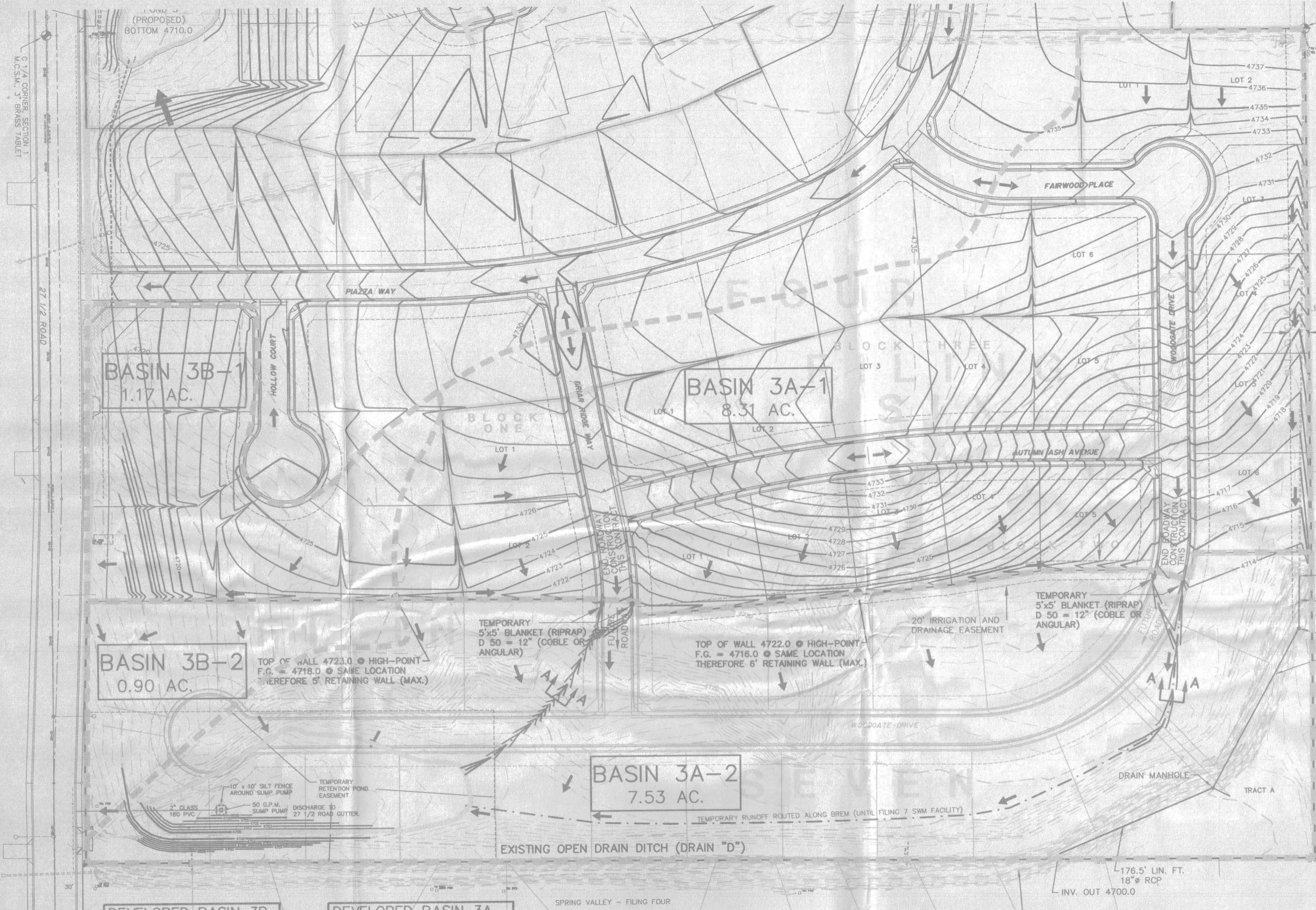
CITY DEVELOPMENT ENGINEER DATE

ACCEPTED AS CONSTRUCTED:

CITY DEVELOPMENT ENGINEER DATE

GRAND JUNCTION, COLORADO SCALE: 1" = 60' JOB NO: 4003.06-02 DATE: 4-09-03

SHEET NO: 18 of 20



DEVELOPED BASIN 3B
2.66 ACRES
DIRECT-DISCHARGE TO 27 1/2 ROAD
Q₂ = 0.53 CFS
Q₁₀₀ = 2.75 CFS

DEVELOPED BASIN 3A
15.84 ACRES (8.31 DEV., 7.53 UNDEV.)
DRAINAGE TO TEMP. RETENTION POND
Q₂ = 2.49 CFS
Q₁₀₀ = 12.94 CFS

HISTORIC - SOUTH BASIN
23.96 ACRES
DIRECT-DISCHARGE TO 27 1/2 ROAD
AND EXISTING OPEN-CHANNEL DRAIN DITCH
Q₂ = 1.91 CFS
Q₁₀₀ = 10.73 CFS

TEMPORARY RETENTION POND STAGE-VOLUME TABLE:

ELEV.	VOLUME (CUBIC-FEET)
4699	0
4700	1,368
4701	5,601
4702	13,608
4703	25,509
4704	42,096
4705	64,792

RETENTION VOLUME REQ'D:

V = PRECIP. x AREA x C (100 YEAR)
 $V = (2.01"/12) \times (8.31 \text{ AC.} \times 43,560) \times (0.38)$
 $+ (2.01"/12) \times (7.53 \text{ AC.} \times 43,560) \times (0.20)$
 $V = 23,040 + 10,988 = 34,028 \text{ CUBIC-FEET}$

RETENTION POND EVACUATION:

34,028 FT³ x 7.48 GAL/FT³ = 254,529 GALLONS
 254,529 GAL/90 G.P.M. = 2828 MINUTES = 47.1 HOURS
 POND EVACUATED IN 47.1 HOURS @ 90 G.P.M.

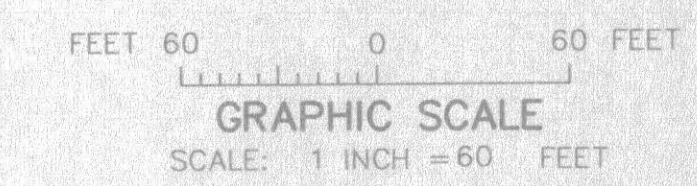
DRAWN BY: S.G.S.	REVIEWED DATE: _____ FOR _____
DESIGNED BY: P.M.O.	REVIEWED DATE: _____ FOR VISTA ENGINEERING CORP.
CHECKED BY: P.M.O.	

VISTA ENGINEERING CORP.
CONSULTING ENGINEERS AND LAND SURVEYORS
2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81606 • (970) 243-2242

REVISION	DATE	BY	CHD
1	7-14-03		REVISED AS PER 1ST P
2	9-26-03		REVISED AS PER 2ND

DESCRIPTION	BY	CHD
VIEW COMMENTS	SGS	PMO
VIEW COMMENTS	SGS	PMO

O.P. DEVELOPMENT CO., LLC



STORMWATER MANAGEMENT PLAN
THE KNOLLS SUBDIVISION, FILING 6