From:	Harmon Rita T.
To:	Fred c. Arfman (freda@iacivil.com); "Genny Donart"; Bryan Bobrick
Cc:	Olson, Paul L.
Subject:	B18D001C - Northpoint Townhomes
Date:	Friday, July 08, 2016 8:37:02 AM

Fred,

This email is being sent in lieu of an attached comment letter in order to expedite the response for initial reviews. Responses to comments should continue to be included in the re-submittal. A reply to this email with responses to comments will not be considered a re-submittal.

Based upon the information provided in your submittal received 6-10-2016, the above referenced plan cannot be approved for Building Permit until the following comments are addressed:

- The DMP basin boundaries need to be modified to match the basins for this site. (The Triangular area discharging to San Mateo should be divided to that flowing north and that flowing south). Show the high point in the road.
- Discharge from the northern basin, Basin 1, discharges 5.2 cfs into an existing road. Provide a swale that directs flows across the PNM site and onto the curb return.
- Verify with Paul Olson, of Environmental Health whether first flush pond should be moved further from the landfill strip.
- The discharge into San Mateo is 16 cfs. Verify that one lane dry can be met. Alternatively, discharge closer into the inlet. Maybe a first flush pond can be located in the SW corner of the site.
- Show existing inlet has capacity to pick up the flows from the road and the additional 16 cfs.
- Show how the private SD ties into the public SD. The lateral that connects to the inlet in Modesto appears to need a MH. These details need to be shown on the DRC set as well.
- Preliminary calculations for the hydraulic structure are required prior to sign off on the Work Order/DRC set.
- Label off-site contours at NE corner, and provide additional contours to show how the offsite flows are directed in this corner.
- On Sheet CG1.1, a reference is made to enlarged plan on CG-501 rather than CG5.1
- Building and structure perimeters need to be better defined by using a heavier line weight

Please call if you have any questions.
Sincerely,

Rita Harmon, P.E.
Senior Engineer, Planning Department
Development Review Services
505-924-3695

JUNE 10, 2016

Supplemental Information

for

North I-25 Apartments

By

ISAACSON & ARFMAN, P.A.

Consulting Engineering Associates

Thomas O. Isaacson, PE(RET.) & LS(RET.)
Fred C. Arfman, PE
Åsa Nilsson-Weber, PE

Introduction:

The proposed development ("Property") consists of the southwest portion of the North I-25 Corporate Center ("Center"), a previously developed property west of the I-25 Frontage Road, in the North Albuquerque Acres area. The Center will be redeveloped as a multi-use development with the proposed apartment complex being the first phase. The Property is bounded to the north and east by additional Center properties which will be redeveloped in the future, to the west by San Mateo Blvd, and to the south by the South La Cueva Arroyo and Modesto Ave.

Drainage requirements for this property are outlined in the Amended Drainage Master Plan for North I-25 Corporate Center (aka Northpoint 25) prepared by Isaacson & Arfman PA, dated January 16 with Engineer's Stamp date 1/19/16 ("Report"). See APPENDIX A for excerpts from this Report.

Per the Report:

- Maximum flows per acre are provided as a method of determining each project's responsibility
- The South La Cueva Arroyo will be redirected underground in a new alignment via a storm drain system in phases.
- The subject property is located on a former landfill. During landfill removal operations, a small strip of landfill was left in place along the east edge of San Mateo Blvd where removal would have required demolition and replacement of permanent infrastructure.
- Water is not permitted to pond over the remaining landfill areas, and any irrigation must meet the requirements of the "Waste Excavation Plan for Waste Excavation of the Former Coronado Landfill – Middle and South Cells" prepared by Lawrence Earth Engineering in October, 2007 and must be approved by the New Mexico Environment Department.
- The South La Cueva Arroyo runs along the southerly edge of the Property in an existing public drainage easement. It is owned, operated, and maintained by the City of Albuquerque.

- A portion of the Property discharges to San Mateo Blvd where it is captured in an existing storm drain. The PNM substation adjacent to the Property also surface flows to San Mateo Blvd. The existing road crests approximately midway between Modesto Ave and San Diego Ave. Per calculations provided in the Report, San Mateo Blvd is capable of carrying more than 22 cfs, so the existing road has sufficient capacity for the existing flows.

- The Center is allowed free discharge to the North or South La Cueva Arroyos.

- The allowable discharge per acre is 4.78 cfs/acre as designated in the Report. All private storm drains shall be sized to carry this developed discharge rate from contributing basin areas.

- Only projects within Basin 4 are allowed to discharge to San Mateo Blvd or may choose to drain to either the North or South La Cueva Arroyo. **San Mateo can accept a maximum of 29.9 cfs.**

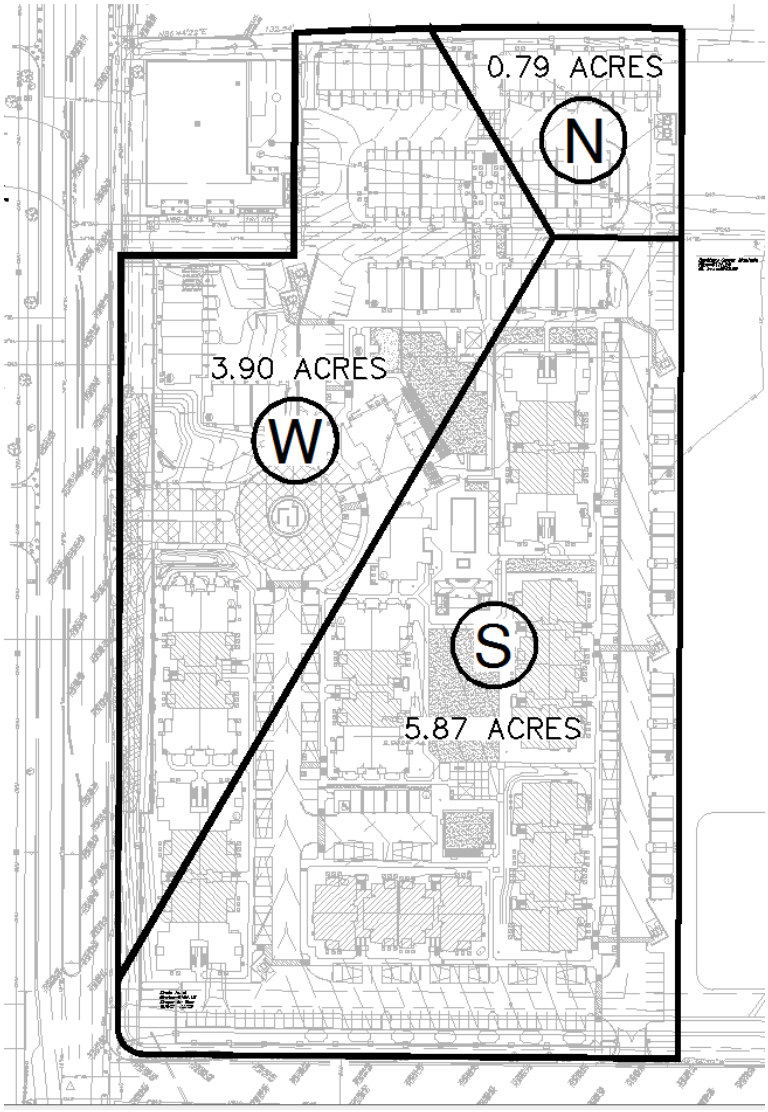
- Any project adjacent to the South La Cueva Arroyo is responsible for designing and building that portion of the new double storm drain. For this Property, the portion of the South La Cueva Arroyo will be constructed (by public work order) prior to or concurrently with this project.

Existing Drainage Basins:

A portion of the proposed development falls within each of the master planned proposed basins (see Appendix A for excepts from the Report)

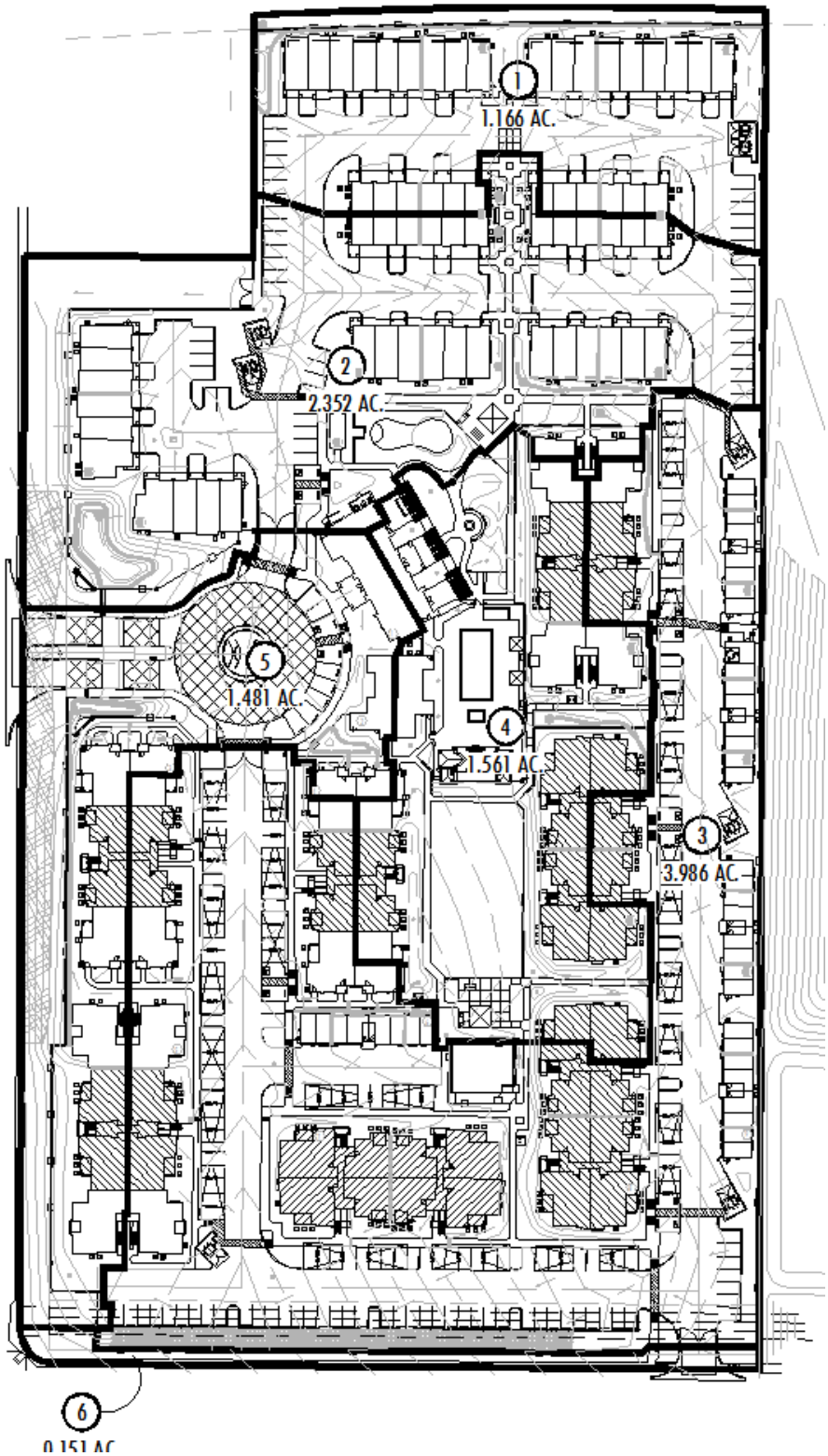
With an allowable discharge rate of 4.78 cfs per acre, the Property is permitted to discharge:

Basin N	0.79 acres	4.78 cfs per acre	3.78 cfs
Basin W	3.90 acres	4.78 cfs per acre	18.64 cfs
Basin S	5.87 acres	4.78 cfs per acre	28.06 cfs



Proposed Drainage Basins:

The proposed development grading establishes six distinct drainage basins:



Basin 1:
5.2 cfs discharging to future North Street, then west to San Mateo Blvd.

Basin 2:
10.6 cfs discharging to Storm Drain / First Flush pond - Discharging to San Mateo Blvd.

Basin 3:
17.9 cfs discharging to First Flush pond - to enter South La Cueva (southwest stub)

Basin 4:
7.0 cfs discharging via Storm Drain - to enter South La Cueva (northwest stub)

Basin 5:
6.9 cfs discharging to San Mateo Blvd.

Basin 6:
0.7 cfs discharging to Modesto Ave.

Total discharge to San Mateo Blvd. = Basins 1, 2 and 5 = 22.7 cfs

BASIN NO. 1	DESCRIPTION	Discharging to future north street
Area of basin flows = 50791 SF	=	1.2 Ac.
The following calculations are based on Treatment areas as shown in table to the right		LAND TREATMENT
Sub-basin Weighted Excess Precipitation (see formula above)		A = 0%
Weighted E = 2.02 in.		B = 6%
Sub-basin Volume of Runoff (see formula above)		C = 24%
V_{360} = 8536 CF		D = 70%
Sub-basin Peak Discharge Rate: (see formula above)		FIRST FLUSH VOL.
Q_P = 5.2 cfs		1007 CF

BASIN NO. 2	DESCRIPTION	To Storm Drain - Discharging to San Mateo Blvd.
Area of basin flows = 102453 SF	=	2.4 Ac.
The following calculations are based on Treatment areas as shown in table to the right		LAND TREATMENT
Sub-basin Weighted Excess Precipitation (see formula above)		A = 0%
Weighted E = 2.02 in.		B = 6%
Sub-basin Volume of Runoff (see formula above)		C = 24%
V_{360} = 17219 CF		D = 70%
Sub-basin Peak Discharge Rate: (see formula above)		FIRST FLUSH VOL.
Q_P = 10.6 cfs		2032 CF

BASIN NO. 3	DESCRIPTION	To Modesto Ponding - to enter South La Cueva (south stub)
Area of basin flows = 173630 SF	=	4.0 Ac.
The following calculations are based on Treatment areas as shown in table to the right		LAND TREATMENT
Sub-basin Weighted Excess Precipitation (see formula above)		A = 0%
Weighted E = 2.02 in.		B = 6%
Sub-basin Volume of Runoff (see formula above)		C = 24%
V_{360} = 29181 CF		D = 70%
Sub-basin Peak Discharge Rate: (see formula above)		FIRST FLUSH VOL.
Q_P = 17.9 cfs		3444 CF

BASIN NO. 4	DESCRIPTION	To Storm Drain - to enter South La Cueva (north stub)
Area of basin flows = 67997 SF	=	1.6 Ac.
The following calculations are based on Treatment areas as shown in table to the right		LAND TREATMENT
Sub-basin Weighted Excess Precipitation (see formula above)		A = 0%
Weighted E = 2.02 in.		B = 6%
Sub-basin Volume of Runoff (see formula above)		C = 24%
V_{360} = 11428 CF		D = 70%
Sub-basin Peak Discharge Rate: (see formula above)		FIRST FLUSH VOL.
Q_P = 7.0 cfs		1349 CF

BASIN NO. 5	DESCRIPTION	To San Mateo Blvd.
Area of basin flows = 64512 SF	=	1.5 Ac.
The following calculations are based on Treatment areas as shown in table to the right		LAND TREATMENT
Sub-basin Weighted Excess Precipitation (see formula above)		A = 0%
Weighted E = 2.02 in.		B = 6%
Sub-basin Volume of Runoff (see formula above)		C = 24%
V_{360} = 10842 CF		D = 70%
Sub-basin Peak Discharge Rate: (see formula above)		FIRST FLUSH VOL.
Q_P = 6.7 cfs		1279 CF

BASIN NO. 6	DESCRIPTION	To Modesto Ave.
Area of basin flows = 6578 SF	=	0.2 Ac.
The following calculations are based on Treatment areas as shown in table to the right		LAND TREATMENT
Sub-basin Weighted Excess Precipitation (see formula above)		A = 0%
Weighted E = 2.02 in.		B = 6%
Sub-basin Volume of Runoff (see formula above)		C = 24%
V_{360} = 1105 CF		D = 70%
Sub-basin Peak Discharge Rate: (see formula above)		FIRST FLUSH VOL.
Q_P = 0.7 cfs		130 CF

Basin 2 Storm Drain:

The Basin 2 storm drain system is designed to accept 10.6 cfs for routing to the first flush pond north of the main entrance. Once the retention pond fills, the basin will free discharge at the sidewalk culvert provided and continue to San Mateo Blvd. to follow historic flowpath.

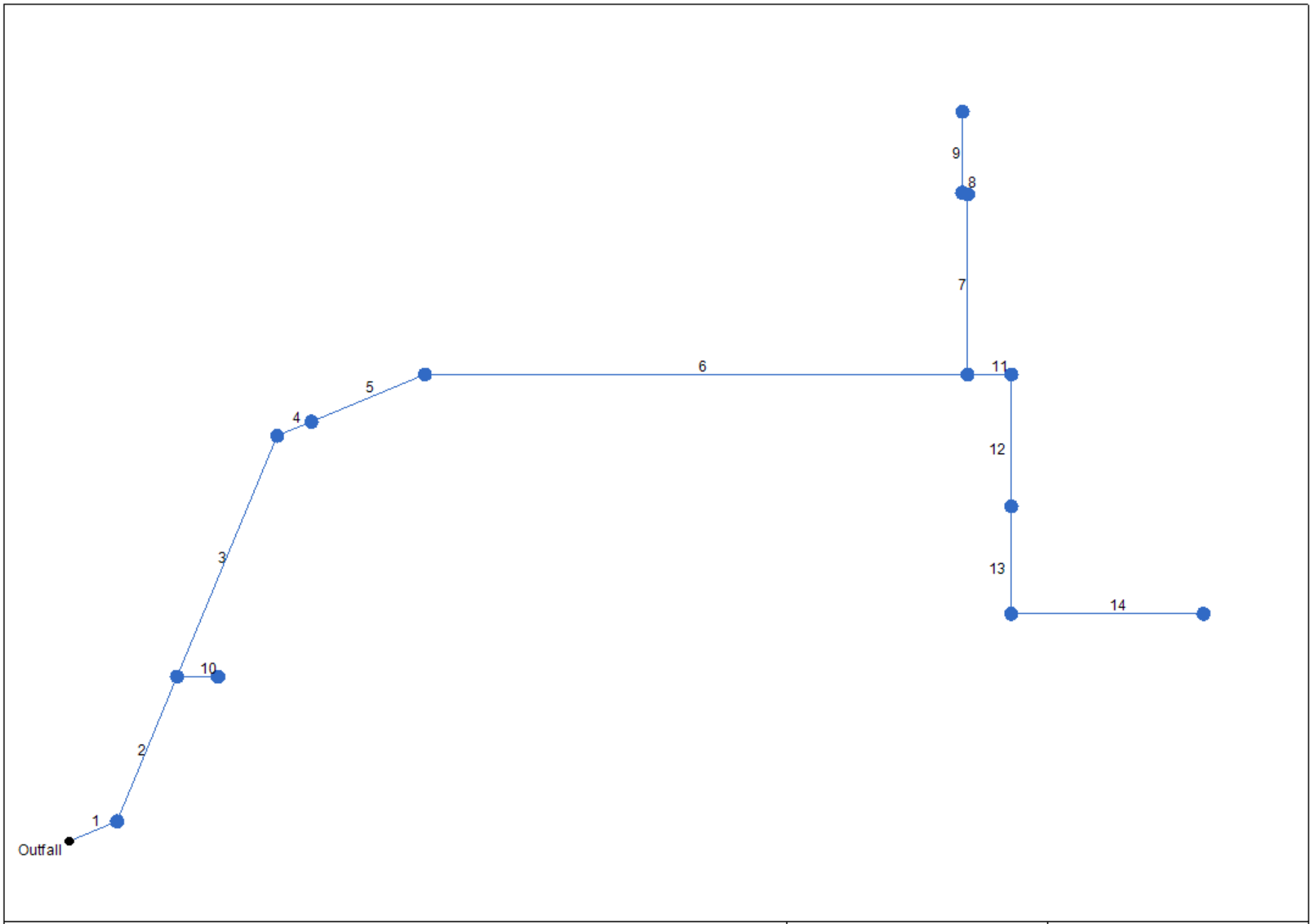
Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1		8.80	18	Cir	15.577	5159.00	5159.16	1.028	5160.15	5160.31	n/a	5160.31 j	End	None
2		8.80	18	Cir	47.356	5159.16	5159.65	1.034	5160.31	5160.80	n/a	5160.80	1	None
3		4.80	18	Cir	78.904	5159.65	5160.47	1.040	5160.80	5161.31	n/a	5161.31 j	2	None
4		4.80	18	Cir	11.212	5160.47	5160.58	0.980	5161.31	5161.42	n/a	5161.42	3	None
5		4.80	18	Cir	37.096	5160.58	5160.97	1.052	5161.42	5161.81	n/a	5161.81	4	Manhole
6		4.80	12	Cir	163.875	5161.00	5162.69	1.031	5162.00*	5164.54*	0.58	5165.12	5	None
7		0.30	8	Cir	54.500	5162.69	5163.25	1.028	5165.12*	5165.15*	0.01	5165.16	6	Manhole
8		0.30	8	Cir	1.820	5163.25	5163.26	0.537	5165.16*	5165.16*	0.01	5165.17	7	Manhole
9		0.20	8	Cir	24.500	5163.25	5163.50	1.020	5165.17*	5165.18*	0.01	5165.18	8	Manhole
10		4.00	12	Cir	12.375	5159.65	5159.80	1.211	5160.80*	5160.93*	0.40	5161.33	2	Manhole
11		2.50	8	Cir	13.250	5162.69	5162.95	1.964	5165.12*	5165.60*	0.80	5166.40	6	Manhole
12		0.50	8	Cir	39.875	5162.95	5163.73	1.956	5166.40*	5166.46*	0.00	5166.46	11	Manhole
13		0.10	8	Cir	32.500	5163.73	5164.37	1.970	5166.46*	5166.47*	0.00	5166.47	12	None
14		0.10	8	Cir	58.000	5164.37	5165.50	1.948	5166.47*	5166.47*	0.00	5166.47	13	Manhole

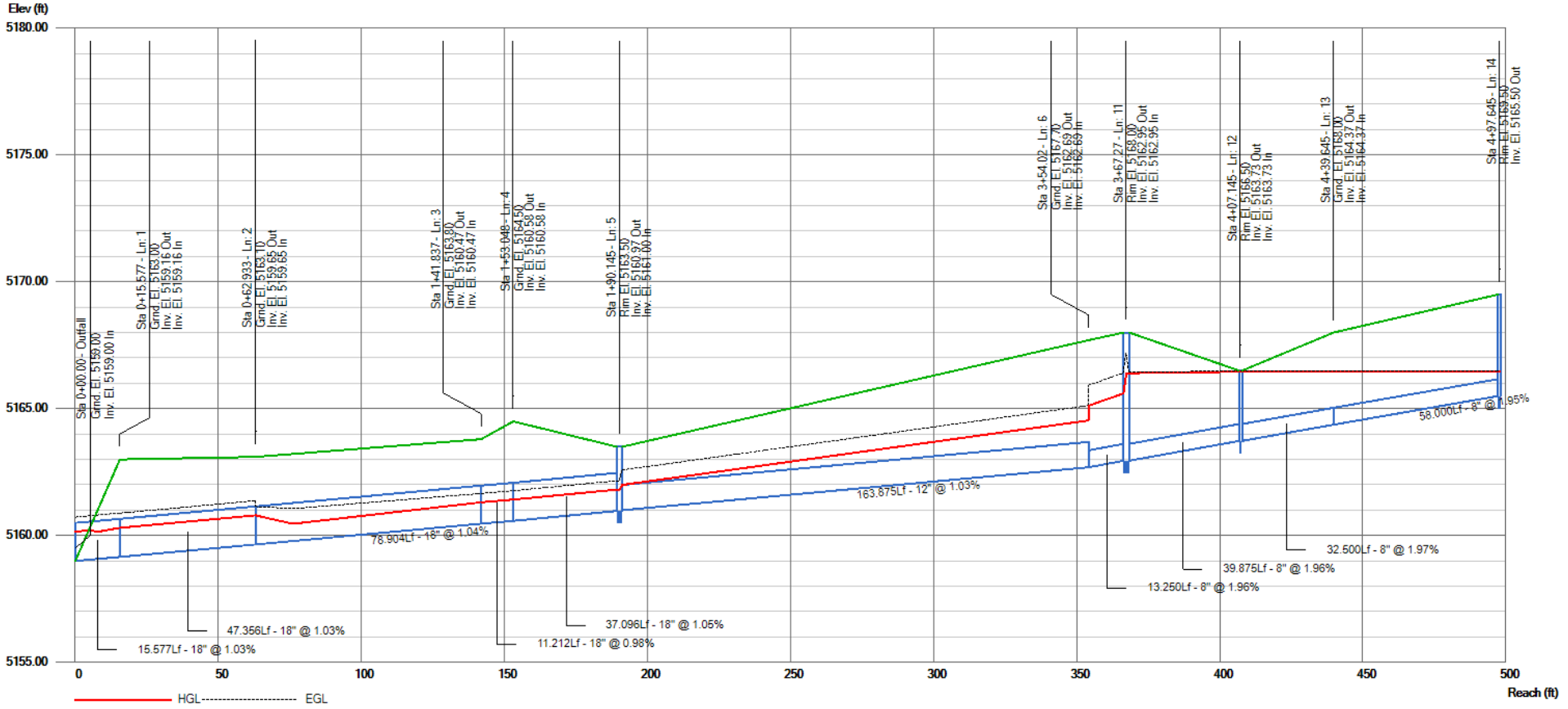
2129 SD North | Number of lines: 14 | Run Date: 6/2/2016

NOTES: Return period = 2 Yrs. ; *Surcharged (HGL above crown). ; j - Line contains hyd. jump.

2129 SD North



Project File: 2129 SD North.stm	Number of lines: 14	Date: 6/2/2016


Elev (ft)
5180.00
5175.00
5170.00
5165.00
5160.00
5155.00
0
50
100
150
200
250
300
350
400
450
500
Reach (ft)
HGL
EGL
Sta 0+00.00 - Outfall
Grnd. El. 5159.00
Inv. El. 5159.00 In
Sta 0+15.577 - Ln: 1
Grnd. El. 5163.00
Inv. El. 5159.16 Out
Inv. El. 5159.16 In
Sta 0+62.933 - Ln: 2
Grnd. El. 5163.10
Inv. El. 5159.65 Out
Inv. El. 5159.65 In
Sta 1+41.837 - Ln: 3
Grnd. El. 5163.90
Inv. El. 5160.47 Out
Inv. El. 5160.47 In
Sta 1+53.048 - Ln: 4
Grnd. El. 5164.50
Inv. El. 5160.58 Out
Inv. El. 5160.58 In
Sta 1+90.145 - Ln: 5
Rim El. 5163.50
Inv. El. 5160.97 Out
Inv. El. 5161.00 In
Sta 3+54.02 - Ln: 6
Grnd. El. 5167.70
Inv. El. 5162.69 Out
Inv. El. 5162.69 In
Sta 3+67.27 - Ln: 11
Rim El. 5168.00
Inv. El. 5162.95 Out
Inv. El. 5162.95 In
Sta 4+07.145 - Ln: 12
Rim El. 5166.50
Inv. El. 5163.73 Out
Inv. El. 5163.73 In
Sta 4+39.645 - Ln: 13
Grnd. El. 5169.00
Inv. El. 5164.37 Out
Inv. El. 5164.37 In
Sta 4+97.645 - Ln: 14
Rim El. 5169.50
Inv. El. 5165.50 Out
15.577Lf - 18" @ 1.03%
47.356Lf - 18" @ 1.03%
78.904Lf - 18" @ 1.04%
11.212Lf - 18" @ 0.98%
37.096Lf - 18" @ 1.05%
163.875Lf - 12" @ 1.03%
13.250Lf - 8" @ 1.96%
39.875Lf - 8" @ 1.96%
32.500Lf - 8" @ 1.97%
58.000Lf - 8" @ 1.95%

Basin 3 Storm Drain:

The Basin 4 storm drain system is designed to accept 17.9 cfs for routing to the South La Cueva arroyo. Per the MDP, a 24” diameter stub will be constructed as part of the public storm drain improvements. The invert of the stub at the storm drain has been coordinated to be 5154.0.

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1		18.00	18	Cir	130.560	5154.00	5155.40	1.072	5155.50*	5158.77*	0.24	5159.01	End	Manhole
2		12.00	18	Cir	18.100	5155.40	5155.60	1.106	5159.01*	5159.21*	0.11	5159.32	1	Manhole
3		6.00	12	Cir	84.330	5155.60	5156.50	1.067	5159.32*	5161.36*	0.91	5162.27	2	Manhole

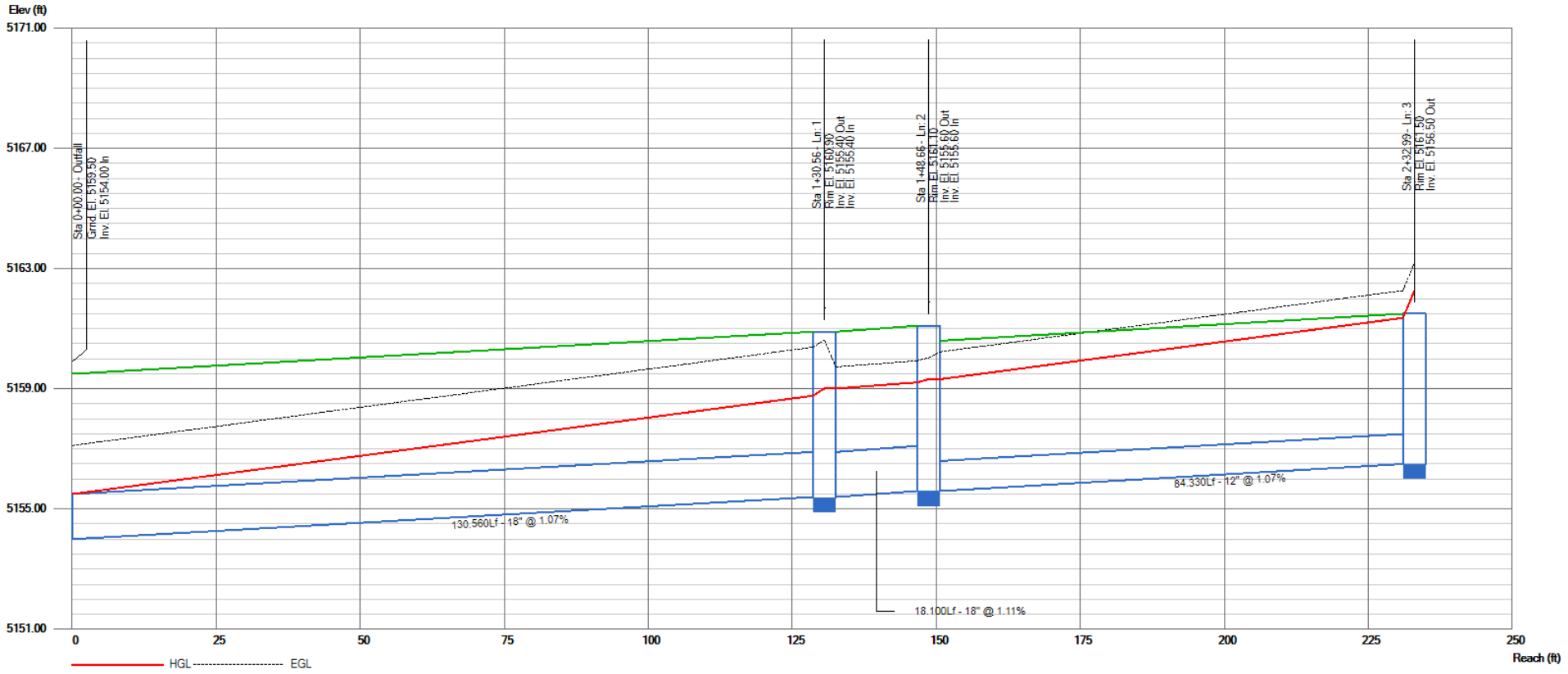
2129 SOUTH FF POND DRAIN | Number of lines: 3 | Run Date: 5/25/2016

NOTES: Return period = 2 Yrs. ; *Surcharged (HGL above crown).

2129 SOUTH FF POND DRAIN

Project File: New.stm	Number of lines: 3	Date: 5/25/2016

Basin 4 Storm Drain Profile:



Basin 4 Storm Drain:

The Basin 4 storm drain system is designed to accept 7.0 cfs for routing to the South La Cueva arroyo. Per the MDP, a 24” diameter stub will be constructed as part of the public storm drain improvements. The invert of the stub to the public storm drain has been coordinated to be 5153.0.

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1		7.00	18	Cir	23.080	5153.00	5153.22	0.954	5155.50*	5155.59*	0.24	5155.83	End	Manhole
2		7.00	18	Cir	142.710	5153.22	5154.58	0.953	5155.83*	5156.37*	0.24	5156.62	1	Manhole
3		7.00	18	Cir	149.570	5154.58	5156.00	0.949	5156.62	5157.11	0.39	5157.50	2	Manhole
4		7.00	18	Cir	120.751	5156.00	5157.15	0.952	5157.50	5158.17	n/a	5158.17 j	3	Manhole
5		7.00	18	Cir	21.250	5157.15	5157.35	0.942	5158.17	5158.37	0.46	5158.37	4	Manhole
6		1.30	8	Cir	60.626	5157.35	5158.88	2.523	5158.37	5159.42	n/a	5159.42 j	5	Manhole
7		0.50	8	Cir	44.751	5158.88	5160.01	2.525	5159.42	5160.34	n/a	5160.34 j	6	Manhole
8		5.70	18	Cir	16.750	5157.35	5157.51	0.953	5158.37	5158.43	0.29	5158.43	5	Manhole
9		5.70	12	Cir	27.754	5157.51	5157.77	0.938	5158.51*	5159.12*	0.12	5159.24	8	Manhole
10		5.70	12	Cir	5.039	5157.77	5157.82	0.988	5159.24*	5159.35*	0.61	5159.96	9	Manhole
11		5.70	12	Cir	131.502	5157.82	5159.07	0.951	5159.96*	5162.83*	0.12	5162.95	10	Manhole
12		4.40	12	Cir	30.125	5159.07	5159.36	0.963	5162.95*	5163.34*	0.37	5163.71	11	Manhole
13		3.10	12	Cir	39.068	5159.36	5159.73	0.947	5163.71*	5163.96*	0.18	5164.14	12	Manhole
14		3.10	12	Cir	66.250	5159.73	5160.36	0.951	5164.14*	5164.57*	0.18	5164.75	13	Manhole
15		1.80	12	Cir	3.802	5160.36	5160.40	1.053	5164.75*	5164.76*	0.06	5164.82	14	Manhole
16		1.30	12	Cir	33.250	5160.40	5160.72	0.963	5164.82*	5164.86*	0.04	5164.90	15	Manhole
17		0.80	8	Cir	83.001	5160.72	5161.51	0.951	5164.90*	5165.21*	0.08	5165.30	16	Manhole
18		0.30	8	Cir	53.000	5161.51	5162.01	0.943	5165.30*	5165.32*	0.01	5165.34	17	Manhole

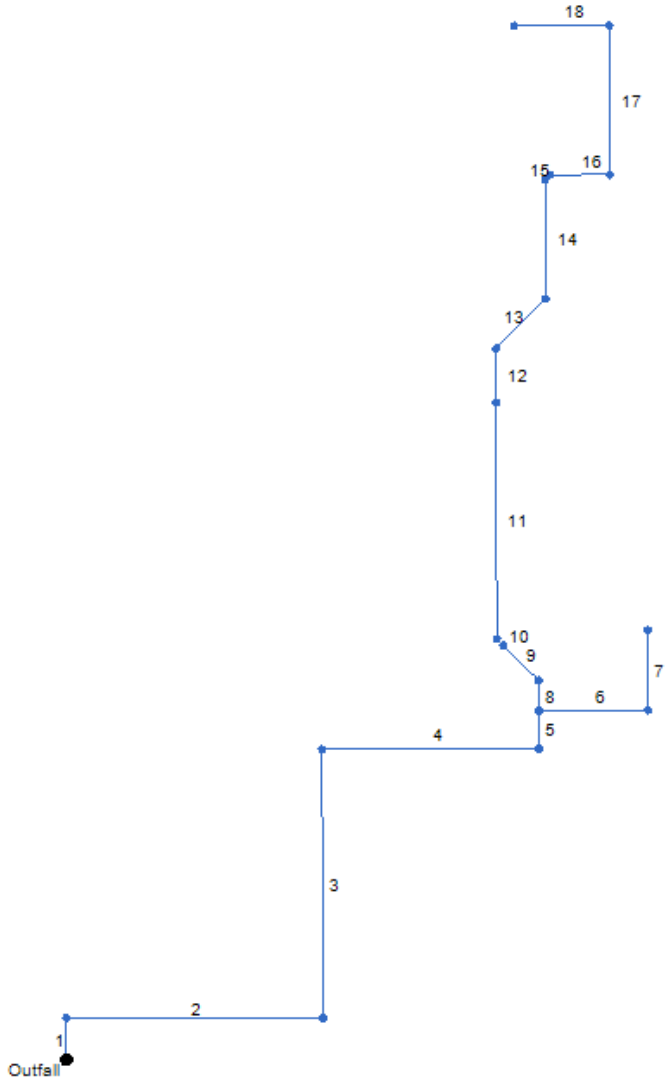
Project File: SD South.stm

Number of lines: 18

Run Date: 5/25/2016

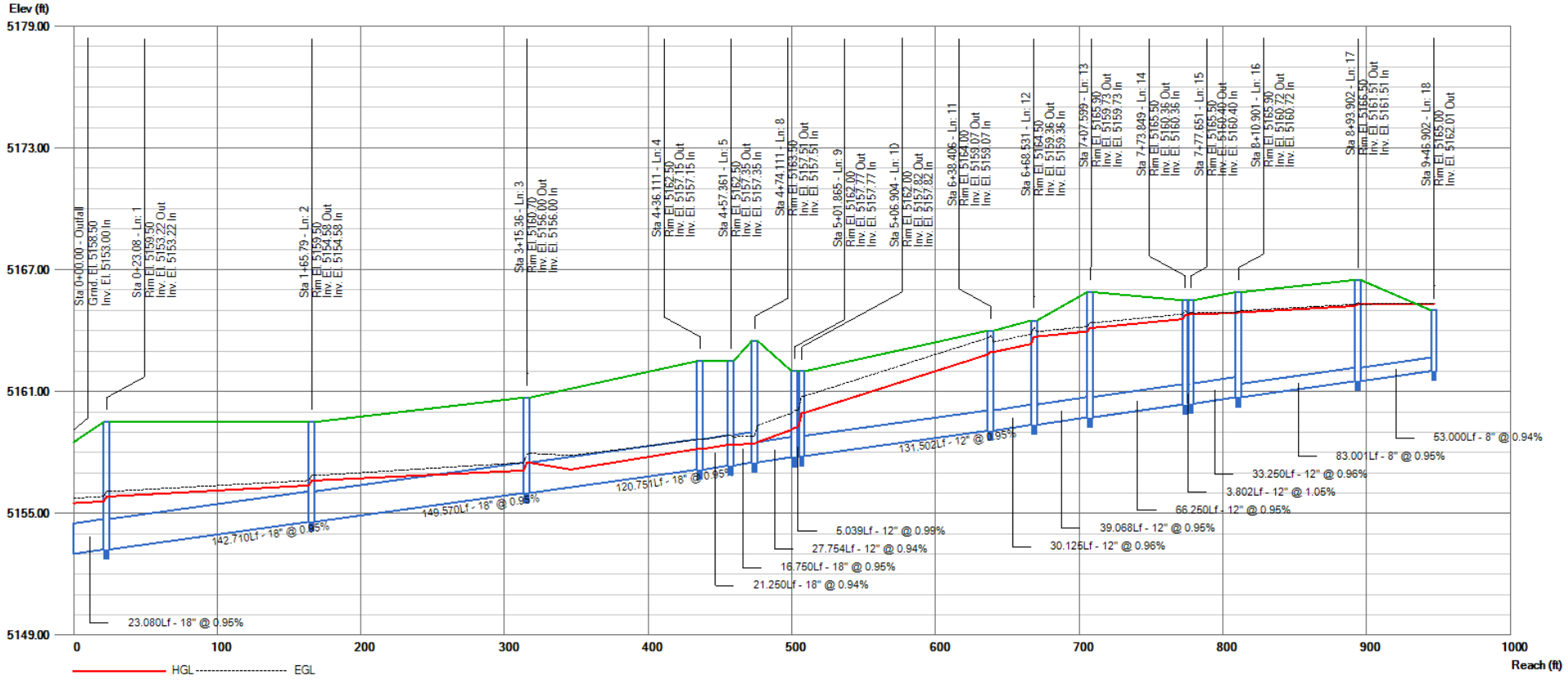
NOTES: Return period = 2 Yrs. ; *Surcharged (HGL above crown). ; j - Line contains hyd. jump.

Hydraflow Storm Sewers Extension for Autodesk® AutoCAD® Civil 3D® Plan



Project File: SD South.stm	Number of lines: 18	Date: 5/25/2016

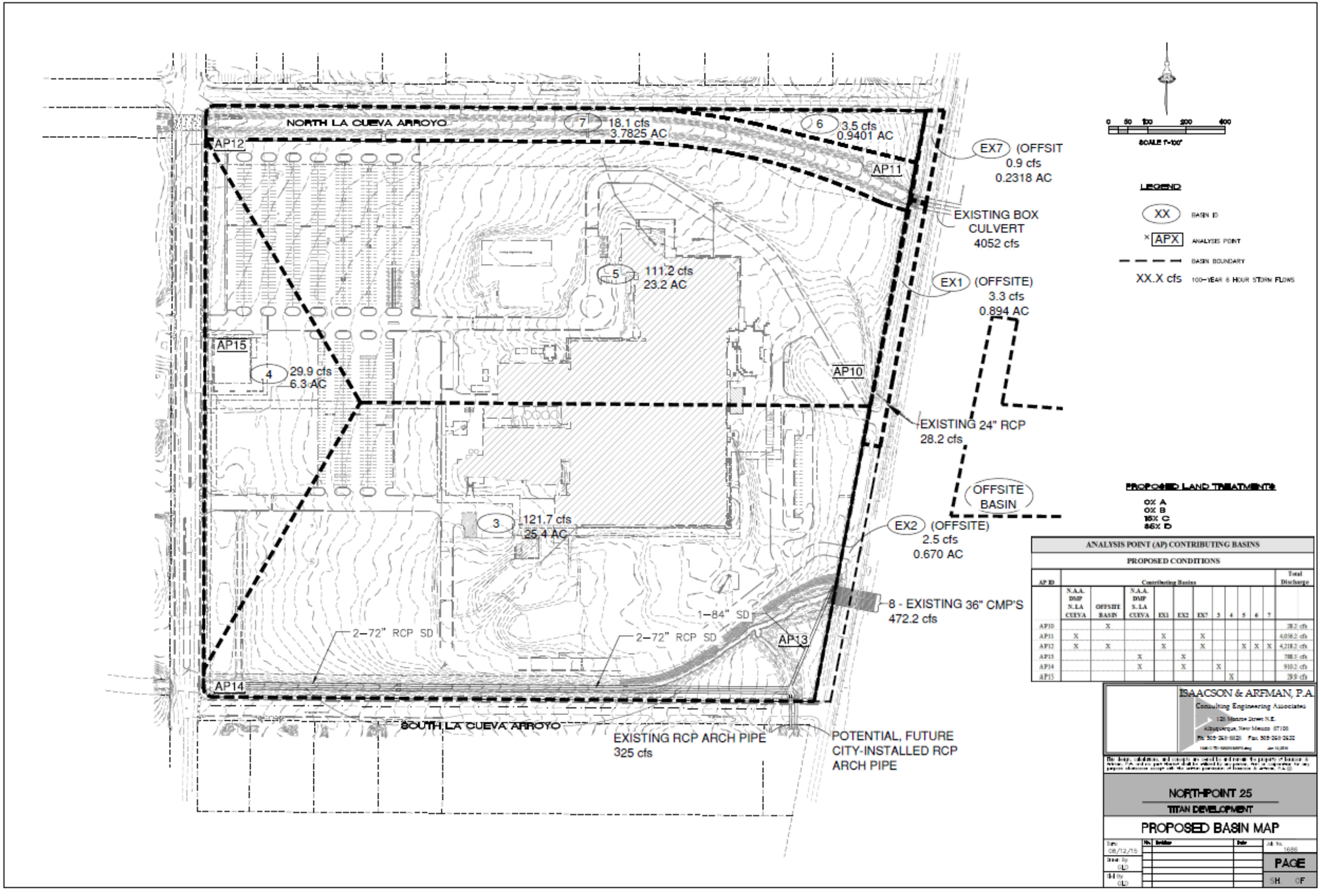
Basin 4 Storm Drain Profile:



APPENDIX A

Excerpts from the Amended Drainage Master Plan for North I-25 Corporate Center (aka Northpoint 25) prepared by Isaacson & Arfman PA, dated January 16 with engineer's stamp date 1/19/16 ("Report").

EXCERPT FROM REPORT: APPENDIX B – PROPOSED CONDITIONS
PROPOSED BASIN MAP



ANALYSIS POINT (AP) CONTRIBUTING BASINS

PROPOSED CONDITIONS

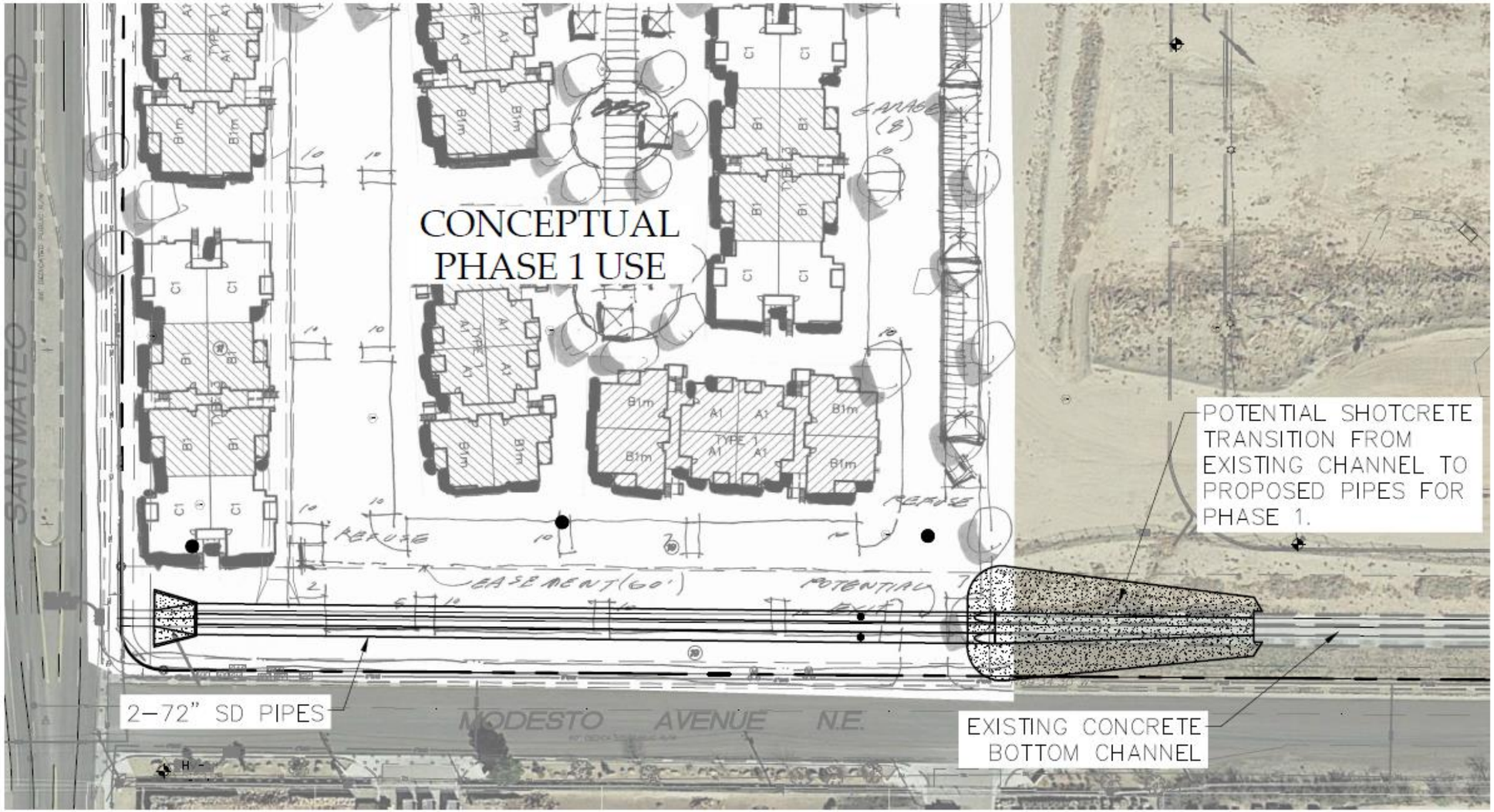
AP ID	Contributing Basins										Total Discharge
	N.A.A. DMP N. LA CUEVA	OFFSITE BASIN	N.A.A. DMP S. LA CUEVA	EX1	EX2	EX7	3	4	5	6	7	
AP10		X										28.2 cfs
AP11	X			X		X						4,056.2 cfs
AP12	X	X		X		X			X	X	X	4,218.2 cfs
AP13			X		X							788.5 cfs
AP14			X		X			X				910.2 cfs
AP15								X				29.9 cfs

ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates
128 Monroe Street N.E.
Albuquerque, New Mexico 87108
Ph. 505-268-8828 Fax. 505-268-2632

NORTHPOINT 25
TITAN DEVELOPMENT
PROPOSED BASIN MAP

Date: 06/12/15
Drawn By: GLD
Chkd By: GLD
No. | Revision | Date
Job No. 1686
PAGE
SH. OF

EXCERPT FROM REPORT: APPENDIX B – PROPOSED CONDITIONS
SOUTH LA CUEVA IMPROVMENTS - CONCEPTUAL FIRST PHASE LAYOUT

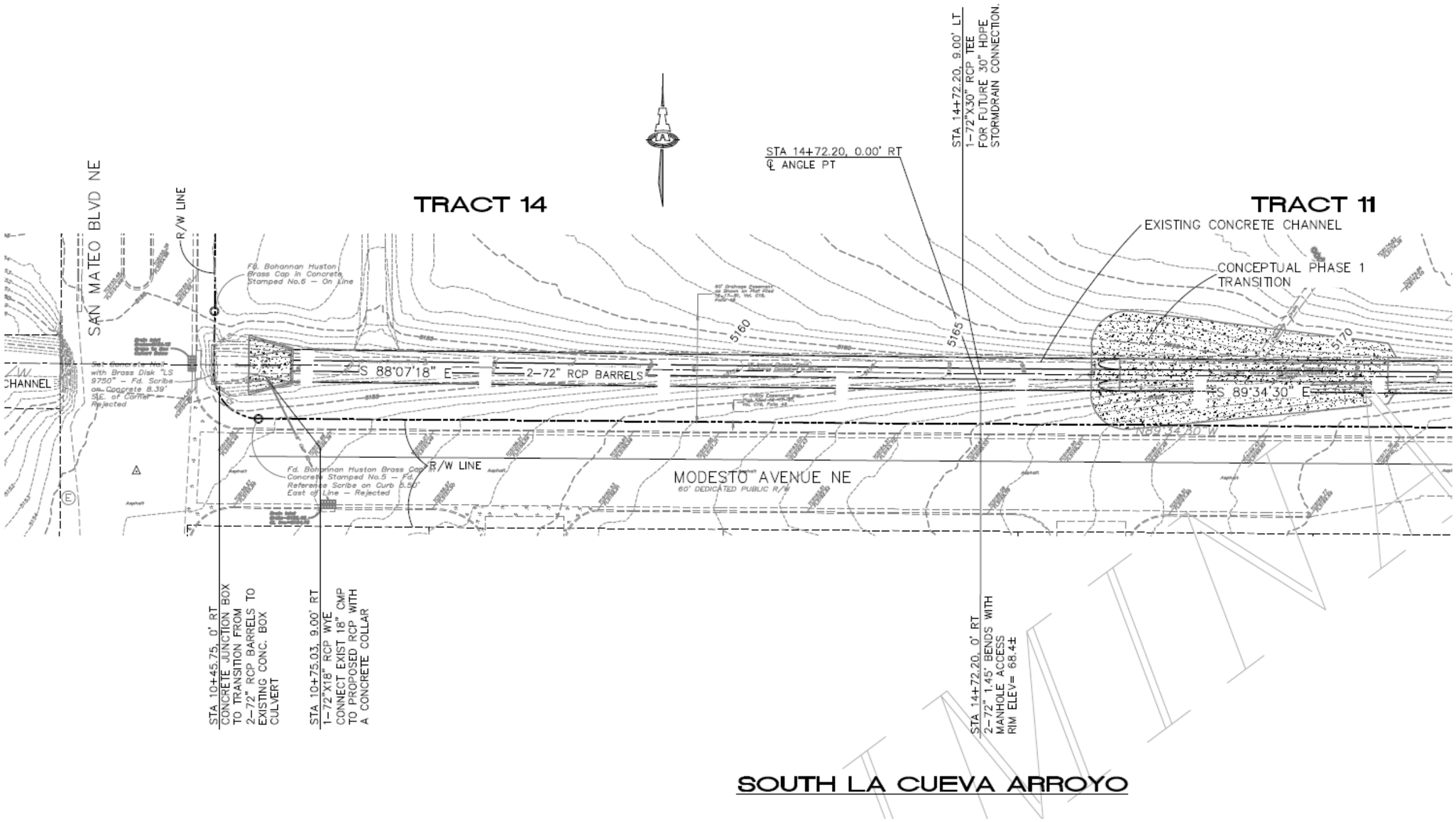


SOUTH LA CUEVA ARROYO
CONCEPTUAL FIRST PHASE

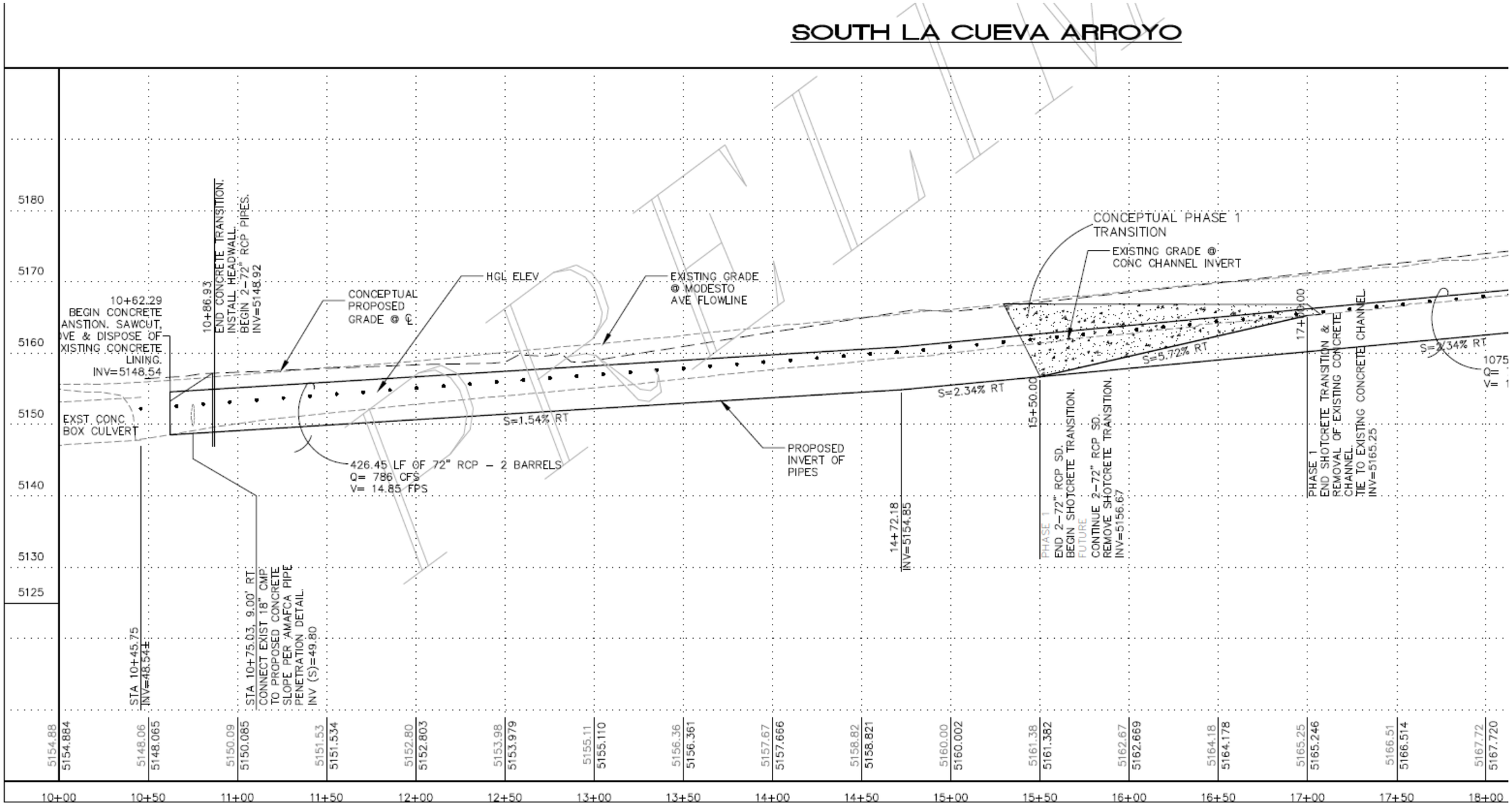
1"=60'

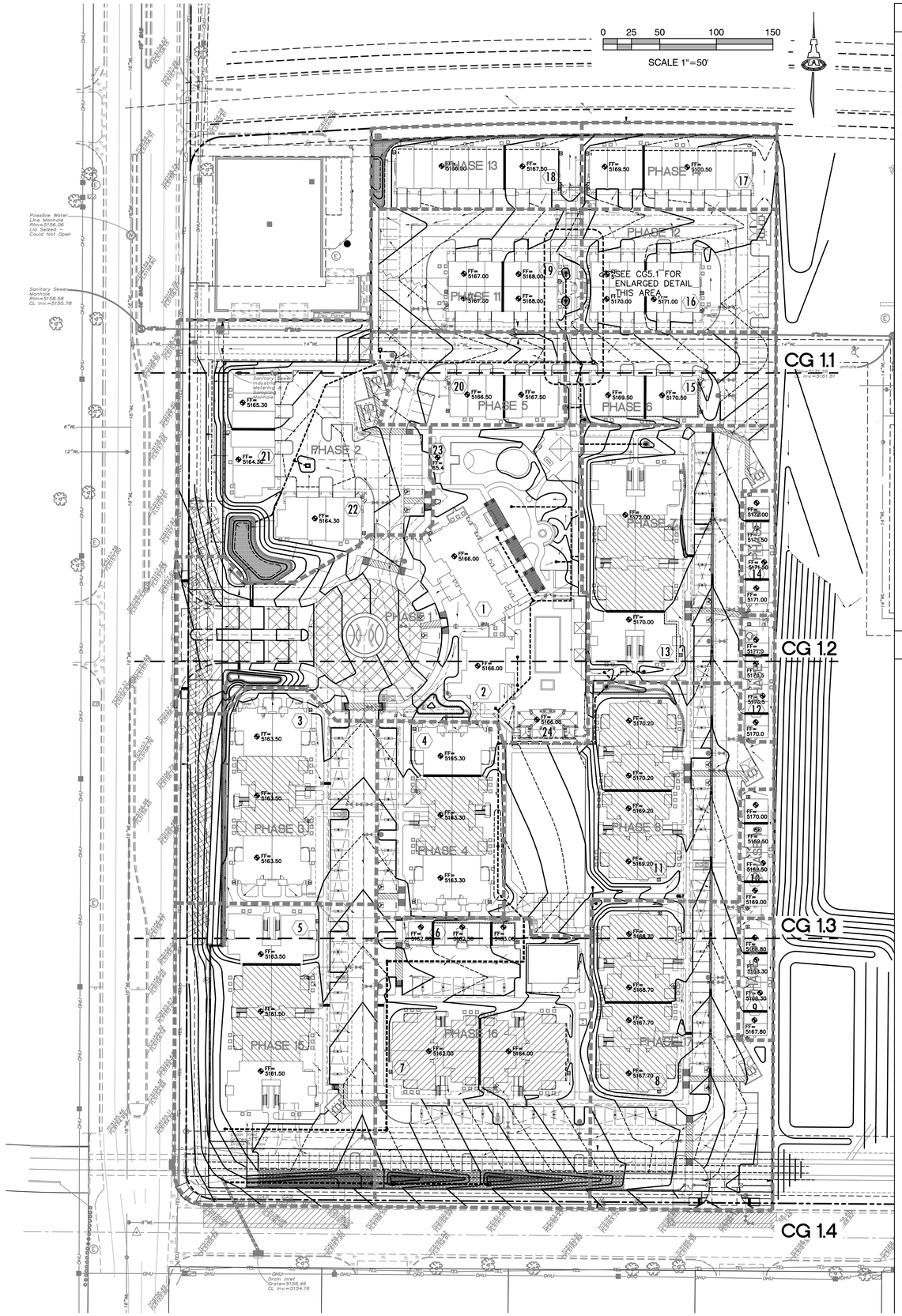
ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates
128 Monroe Street N.E.
Albuquerque, New Mexico 87108
Ph. 505-268-8828 Fax. 505-268-2632

EXCERPT FROM REPORT: APPENDIX B – PROPOSED CONDITIONS
SOUTH LA CUEVA IMPROVMENTS - CONCEPTUAL FIRST PHASE PLAN



EXCERPT FROM REPORT: APPENDIX B – PROPOSED CONDITIONS
SOUTH LA CUEVA IMPROVMENTS - CONCEPTUAL FIRST PHASE PROFILE





DRAINAGE CONCEPT

PER THE AMENDED DRAINAGE MASTER PLAN (DMP) FOR NORTH I-25 CORPORATE CENTER (AKA NORTHPOINT 25) PREPARED BY ISAACSON AND ARFMAN, PA, DATED NOVEMBER, 2015 (CURRENTLY UNDER REVIEW BY C.O.A. HYDROLOGY), THE OVERALL 59.66 ACRE TRACT WHICH THIS DEVELOPMENT IS A PART OF IS ALLOWED FREE DISCHARGE TO THE NORTH AND SOUTH LA CUEVA ARROYOS

DMP DRAINAGE BASINS:

THE DMP BASED ALLOWABLE FREE DISCHARGE ON AN ASSUMED LAND TREATMENT RATIO OF 85%D : 15%C : 0%B : 0%A. BASED ON THIS RATIO, THE ALLOWABLE DISCHARGE PER ACRE IS 4.78 CFS/ACRE.

THE PROPERTY FALLS WITHIN DMP DRAINAGE BASINS (SEE DMP DRAINAGE BASIN EXHIBIT THIS SHEET):

- BASIN 3 --> 28.0 CFS TO THE SOUTH LA CUEVA ARROYO.
- BASIN 4 --> 16.0 CFS TO SAN MATEO BLVD. (OR MAY DRAIN TO EITHER THE NORTH OR SOUTH LA CUEVA ARROYO)
- BASIN 5 --> 3.8 CFS TO THE NORTH LA CUEVA ARROYO.

PROPOSED DRAINAGE BASINS:

THE PROPOSED PROPERTY IS 9.99 ACRES. BASED ON THE DMP ALLOWABLE DISCHARGE RATE OF 4.78 CFS/ACRE, THE PROPERTY IS PERMITTED 47.8 CFS OF DISCHARGE DURING THE 100-YEAR 6-HOUR STORM.

BASED ON THE PROPOSED LAND TREATMENT RATIO OF 70%D: 24%C: 6%B: 0%A, THE SITE WILL GENERATE LESS THAN THE ALLOWABLE. REFER TO THE SUPPLEMENTAL INFORMATION PACK FOR BASIN CALCULATIONS AND ANALYSIS.

FIRST FLUSH

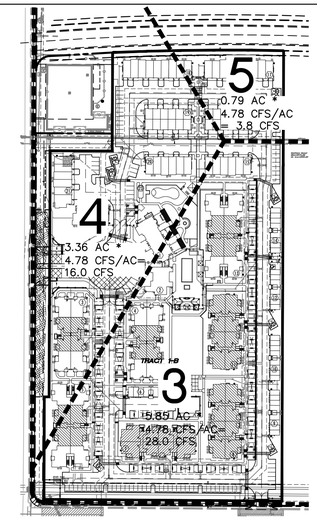
STORMWATER CONTROL MEASURES ARE REQUIRED TO PROVIDE MANAGEMENT OF 'FIRST FLUSH' (DEFINED AS THE 90TH PERCENTILE STORM EVENT OR 0.34" [0.44" LESS 0.1" FOR INITIAL ABSTRACTION] OF STORMWATER WHICH DISCHARGES DIRECTLY TO A PUBLIC STORM DRAINAGE SYSTEM).

THE ESTIMATED PONDING VOLUME REQUIRED IS 0.34" * TYPE 'D' AREA: 0.34/12 * 7.0 AC * 43560 = 8,640 CF

EVERY EFFORT HAS BEEN MADE TO PROVIDE 'FIRST FLUSH' RETENTION POND AREAS THROUGHOUT THE SITE. STORM WATER FROM MOST IMPERVIOUS AREAS SHALL BE DIRECTED TO THESE BASINS.

THE 'FIRST FLUSH' BASIN VOLUMES HAVE BEEN ANALYZED AND SIZED AS PART OF THE SUPPLEMENTAL INFORMATION PACK INCLUDED WITH THE BUILDING PERMIT PLAN SUBMITTAL.

DMP DRAINAGE BASINS



LEGEND

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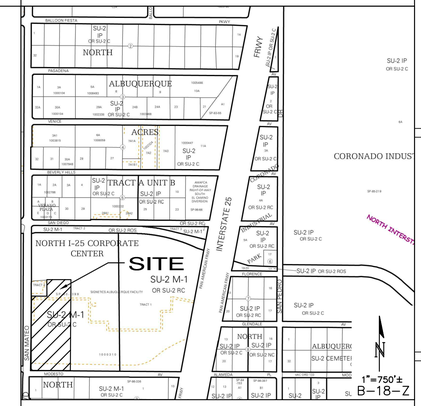
75.5	PROPOSED CONTOUR – 0.5' INCREMENT
78.3	PROPOSED SPOT ELEVATION
	FLOW ARROW
FF= 5171.00	FINISH FLOOR ELEVATION
	ROCK EROSION CONTROL
	PROPOSED STORM DRAIN (SEE CG-501)
FL=	FLOWLINE ELEVATION
INV=	INVERT ELEVATION
	RETAINING WALL
	'FIRST FLUSH' RETENTION BASIN
	GRADE BREAK / SLOPE TRANSITION
	DEEPENED/RETAINING BUILDING STEMWALL
15	BUILDING NUMBER

VICINITY MAP



PHASING NOTE

CONSTRUCTION OF BUILDINGS WILL BE PHASED. ALL STORM DRAIN TRUNK LINES SHALL BE CONSTRUCTED PRIOR TO START OF BUILDING CONSTRUCTION. ALL OTHER DRAINAGE IMPROVEMENTS (AREA INLETS, SIDEWALK CULVERTS, SIDEWALK DRAIN PIPES, LOCALIZED STORM DRAINS) SHALL BE CONSTRUCTED AND CERTIFIED (ENGINEER'S CERTIFICATION OF SUBSTANTIAL COMPLIANCE) WITH EACH BUILDING PHASE CERTIFICATE OF OCCUPANCY PROCEDURE. CONSTRUCTION SEQUENCE OF BUILDING PHASES IS DENOTED ON BUILDING PERMIT SET.

PROJECT INFORMATION

PROPERTY: THE SITE IS A PREVIOUSLY DEVELOPED PROPERTY LOCATED WITHIN C.O.A. VICINITY MAP B-18. THE SITE IS BOUND TO THE SOUTH BY THE 'SOUTH LA CUEVA ARROYO' AND MODESTO ROAD NE, TO THE NORTH AND EAST BY FULLY DEVELOPED COMMERCIAL PROPERTY (TO BE REDEVELOPED AS NORTHPOINT 25), AND TO THE WEST BY SAN MATEO BLVD. NE.

PROPOSED IMPROVEMENTS: THE PROPOSED IMPROVEMENTS INCLUDE A 23 BUILDING APARTMENT COMPLEX (INCLUDING APARTMENT UNITS, GARAGE / CARRIAGE UNITS, OFFICE BLDG., HEALTH FACILITY, MAIL STRUCTURE AND POOL RAMADA) WITH ASSOCIATED PAVED DRIVES, PARKING, PEDESTRIAN WALKS AND LANDSCAPING.

LEGAL: (EXISTING) A PORTION OF TRACT 1, NORTH I-25 CORPORATE CENTER, CITY OF ALBUQUERQUE, NM.

AREA: 9.9924 ACRES

BENCHMARK: VERTICAL DATUM IS BASED ON THE ALBUQUERQUE CONTROL SURVEY/NEW MEXICO STATE HIGHWAY COMMISSION MONUMENT "I25-11", HAVING A PUBLISHED ELEVATION OF 5209.617' (NAVD 1988).

OFF-SITE: NO OFF-SITE DRAINAGE WILL IMPACT THIS PROPERTY. TEMPORARY DEFLECTION BERMS AND DESILTATION PONDS WILL BE CONSTRUCTED ON THE PROPERTY TO THE EAST (SAME OWNER) TO DEFLECT FLOW NORTH AND SOUTH AROUND THE PROPOSED DEVELOPMENT.

FLOOD HAZARD: THE MAJORITY OF THE PROPERTY LIES WITHIN ZONE "X" (AREAS DETERMINED TO BE OUTSIDE 0.2% ANNUAL CHANCE FLOOD PLAIN). A PORTION OF THE PROPERTY ALONG THE SOUTH BOUNDARY LIE WITHIN A ZONE "A" (NO BASE FLOOD ELEVATIONS DETERMINED, 1% ANNUAL CHANCE FLOOD DISCHARGE CONTAINED IN CHANNEL) IN ACCORDANCE WITH THE NATIONAL FLOOD INSURANCE PROGRAM RATE MAP NO. 35001C012 H, EFFECTIVE DATE 8/16/2012.

SURVEYOR: RUSS P. HUGG, SURV-TEK, INC., (505)897-3366, ALBUQUERQUE, NEW MEXICO.

CIVIL ENGINEER: FRED C. ARFMAN, ISAACSON & ARFMAN, PA., (505)268-8828, ALBUQUERQUE, NEW MEXICO.

GRADING NOTE

PROPOSED SPOT AND CONTOUR ELEVATIONS SHOWN REPRESENT TOP OF FINISH MATERIAL (I.E. TOP OF CONCRETE, TOP OF CONCRETE BUILDING PAD, TOP OF PAVEMENT MATERIAL, TOP OF LANDSCAPING MATERIAL, ETC.). CONTRACTOR SHALL GRADE, COMPACT SUBGRADE AND DETERMINE EARTHWORK ESTIMATES BASED ON ELEVATIONS SHOWN MINUS FINISH MATERIAL THICKNESSES.

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2129 CG-10X.dwg Jun 10,2016

REVISIONS

FIRST CITY SUBMITTAL

DATE: MAY 24, 2016 ORB # 15-212

CG1.0

OVERALL GRADING AND DRAINAGE PLAN

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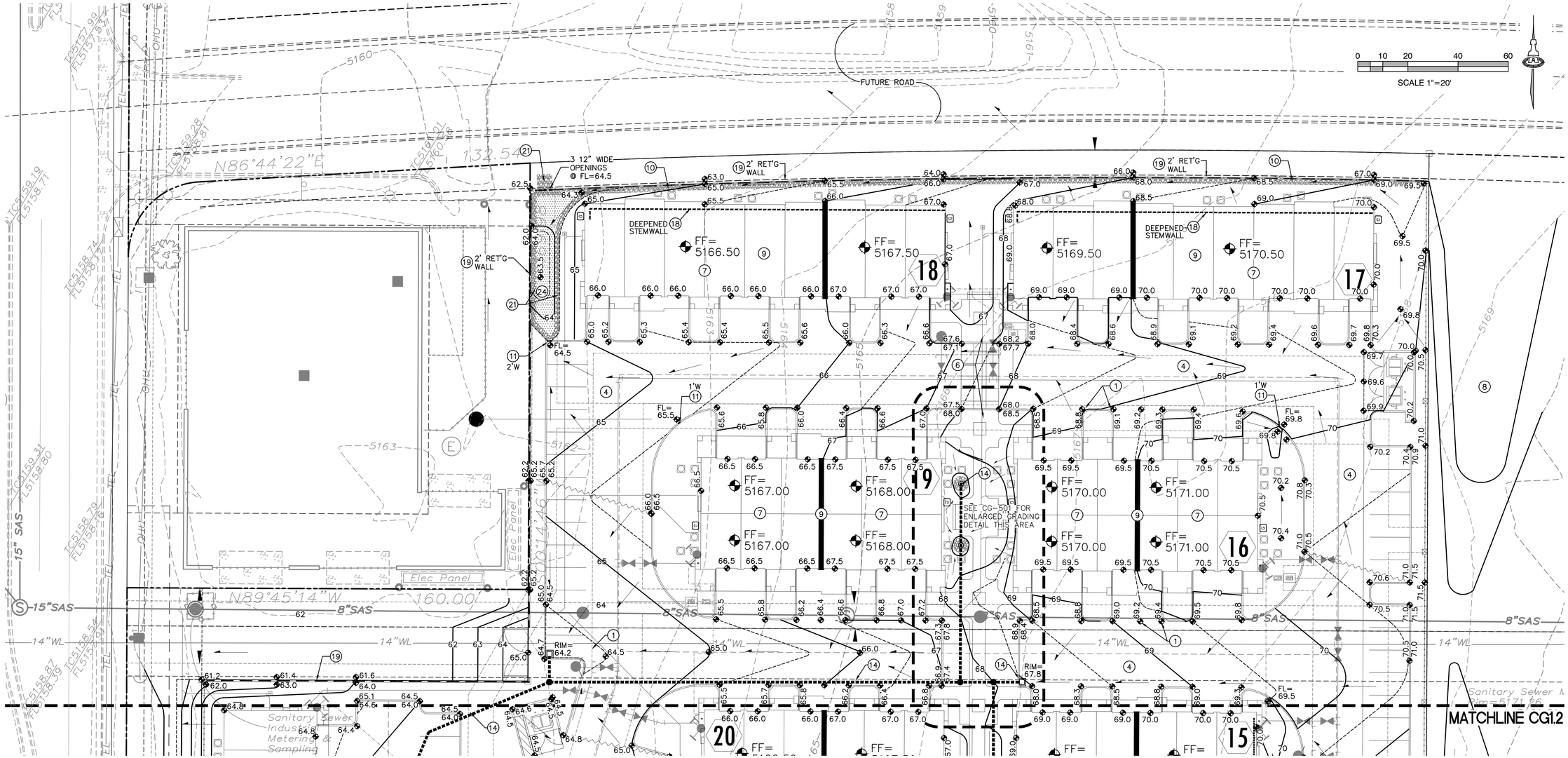

KEYED NOTES

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2. SEE PUBLIC WORK ORDER DRAWINGS FOR CONSTRUCTION WITHIN R.O.W. INCLUDING NEW ACCESS DRIVES WITH CONCRETE VALLEY GUTTER, HANDICAP RAMPS, PUBLIC SIDEWALKS, ETC. GRADES SHOWN FOR INFORMATION ONLY.
3. SEE PUBLIC WORK ORDER DRAWINGS FOR CONSTRUCTION OF PUBLIC STORM SEWER SYSTEM WITHIN PUBLIC DRAINAGE EASEMENT THIS AREA.
4. CONSTRUCT PAVING, CURBS, WALKS AT ELEVATIONS SHOWN. SEE PAVING PLAN, PAVING DETAILS AND ARCHITECTURAL SITE DETAILS FOR ADDITIONAL INFORMATION. NOTE THAT PAVEMENT SLOPES AND CROSS-SLOPES VARY THROUGHOUT TO ACHIEVE GRADES NECESSARY FOR ADA COMPLIANT PEDESTRIAN ACCESS; POSITIVE DRAINAGE; STREET STORMWATER CAPACITIES; PIPE COVERAGE; ETC. CONSTRUCT TO ELEVATIONS SHOWN.
5. SLOPES WITHIN HANDICAP PARKING AREAS TO BE ADA COMPLIANT. MAX. SLOPE = 2% IN ANY DIRECTION.
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7. F.F. ELEVATION WITHIN UNITS WITH GARAGES REFERENCES TOP OF CONCRETE STEP AT BACK OF GARAGE. GRADE AT GARAGE DOOR SHOWN 6" BELOW F.F. TO ACCOMMODATE 4" STEP AND PAD SLOPE. TYPICAL.
8. OFF-SITE GRADING THIS AREA TO PROVIDE FOR TEMPORARY DESILTATION PONDS AND BERMS AS REQUIRED TO ROUTE OFF-SITE FLOW AROUND DEVELOPMENT.
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10. PROVIDE 3' WIDE FRACTURED FACE ROCK SWALE AT GRADES SHOWN. SEE CG5.1 FOR ADDITIONAL INFORMATION..
11. PROVIDE OPENING IN CURB TO PASS FLOW (SEE PLAN FOR BOTTOM WIDTH). INSTALL 3'X3' ROCK EROSION PROTECTION (DEPRESS TO PREVENT BLOCKING OF FLOW) WITHIN LANDSCAPE AREA. SEE DETAIL SHEET CG5.1.
12. CONSTRUCT 18" WIDE (BOTTOM WIDTH) COVERED SIDEWALK CULVERT PER C.O.A. STD. DWG. 2236. SEE DETAIL SHEET CG5.1 FOR ADDITIONAL CONSTRUCTION INFORMATION.
13. INSTALL TWO 4" DIA. PVC PIPE DRAINS @ 2% SLOPE THROUGH SIDEWALK. GRADE LANDSCAPE TO DIRECT FLOW TO OPENING. SEE DETAIL SHEET CG5.1.
14. CONSTRUCT PRIVATE STORM DRAIN SYSTEM. SEE SHEET CG5.2 FOR SIZES / SLOPES / INLET INFORMATION / MATERIALS.
15. EXTEND AND MAKE WATERTIGHT CONNECTION TO PUBLIC STORM SEWER AT STUB PROVIDED. SEE CG5.2 FOR ADDITIONAL INFORMATION.
16. POOL AREA GRADES SHOWN FOR GENERAL INFORMATION ONLY. POOL CONTRACTOR TO PROVIDE FINAL DESIGN GRADES / DECK DRAINS ETC.
17. CONSTRUCT RETAINING STEMWALL TO ACHIEVE EXTERIOR GRADES SHOWN. SEE ARCHITECTURAL.
18. CONSTRUCT DEEPENED STEMWALL THIS AREA TO ACHIEVE EXTERIOR GRADES SHOWN. SEE ARCHITECTURAL.
19. CONSTRUCT SITE RETAINING WALL TO ACHIEVE GRADE DIFFERENCE THIS AREA. SEE ARCHITECTURAL PLAN FOR EXTENTS AND DETAILS. STRUCTURAL / WEEPHOLE DESIGN BY OTHERS.
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26. CONSTRUCT STORM DRAIN OUTLET WITH END SECTION. SEE CG5.1 FOR DETAIL.
27. CONSTRUCT STORM DRAIN PRIOR TO RETAINING WALL PLACEMENT.

LEGEND

- 79 — PROPOSED CONTOUR – 1' INCREMENT
- 75.5 — PROPOSED CONTOUR – 0.5' INCREMENT
- 78.3 — PROPOSED SPOT ELEVATION
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- FF= 5171.00 — FINISH FLOOR ELEVATION
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- FINISH FLOOR GRADE TRANSITION

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2129 CG-10X.dwg Jun 10,2016

REVISIONS

FIRST CITY SUBMITTAL

DATE: MAY 24, 2016 ORB # 15-212

CG1.1

GRADING AND DRAINAGE PLAN - 1 OF 4

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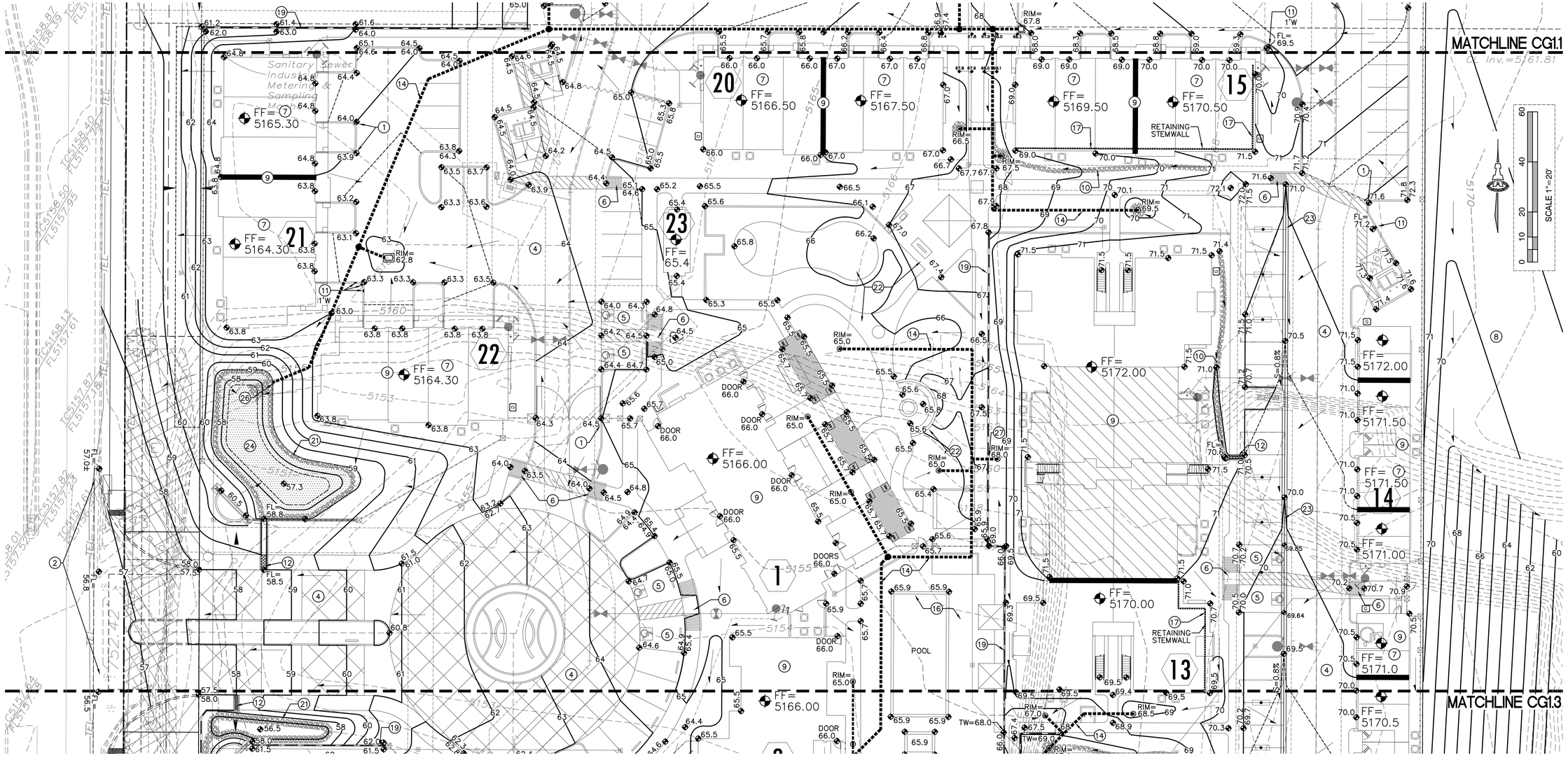

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REVISIONS

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DATE: MAY 24, 2016 ORB # 15-212

CG1.2

GRADING AND DRAINAGE PLAN - 2 OF 4

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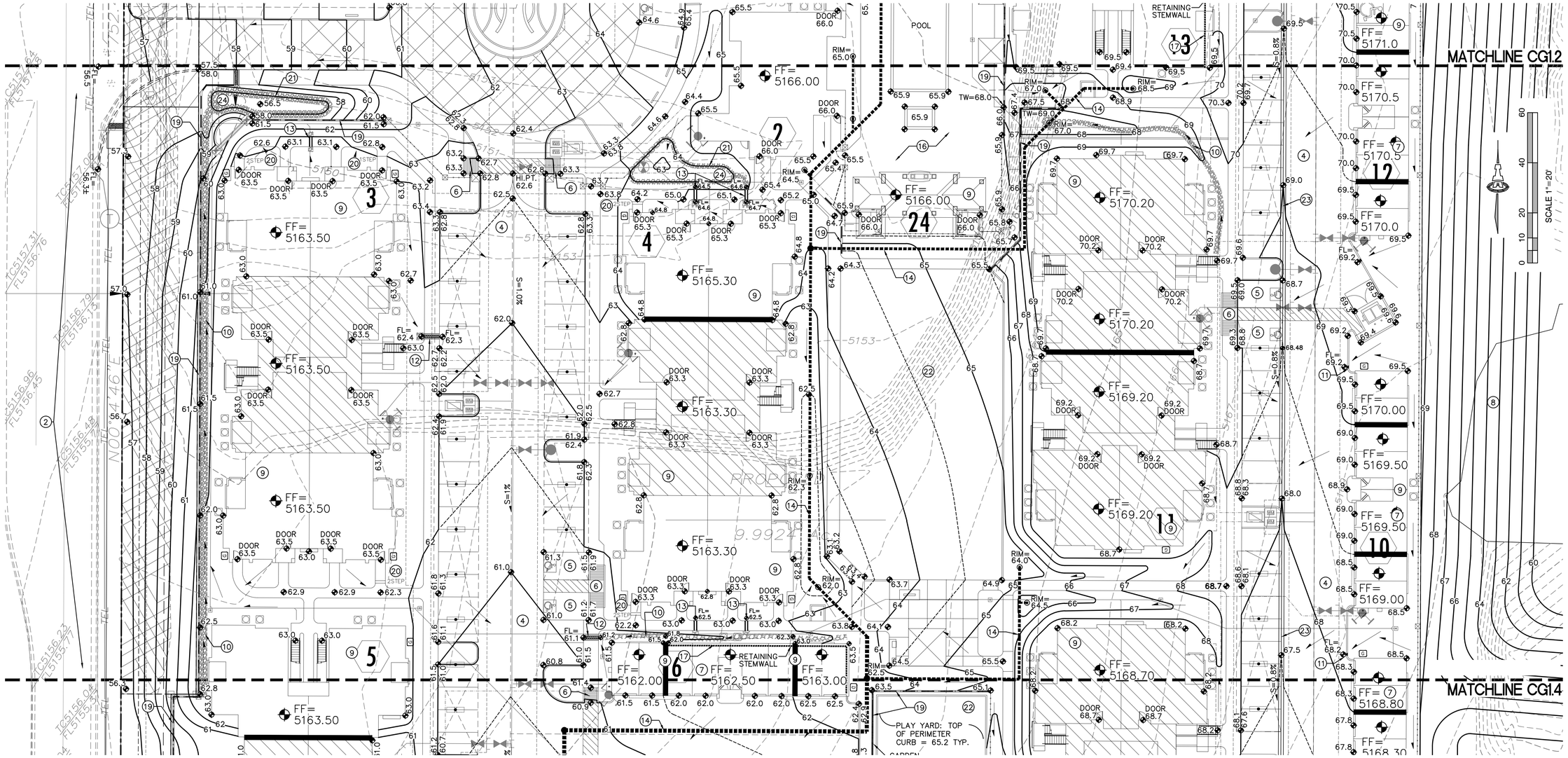

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14. CONSTRUCT PRIVATE STORM DRAIN SYSTEM. SEE SHEET CG5.2 FOR SIZES / SLOPES / INLET INFORMATION / MATERIALS.
15. EXTEND AND MAKE WATERTIGHT CONNECTION TO PUBLIC STORM SEWER AT STUB PROVIDED. SEE CG5.2 FOR ADDITIONAL INFORMATION.
16. POOL AREA GRADES SHOWN FOR GENERAL INFORMATION ONLY. POOL CONTRACTOR TO PROVIDE FINAL DESIGN GRADES / DECK DRAINS ETC.
17. CONSTRUCT RETAINING STEMWALL TO ACHIEVE EXTERIOR GRADES SHOWN. SEE ARCHITECTURAL.
18. CONSTRUCT DEEPENED STEMWALL THIS AREA TO ACHIEVE EXTERIOR GRADES SHOWN. SEE ARCHITECTURAL.
19. CONSTRUCT SITE RETAINING WALL TO ACHIEVE GRADE DIFFERENCE THIS AREA. SEE ARCHITECTURAL PLAN FOR EXTENTS AND DETAILS. STRUCTURAL / WEEPHOLE DESIGN BY OTHERS.
20. CONSTRUCT 6" STEP(S) PER PLAN. SEE ARCHITECTURAL.
21. EROSION CONTROL (MIN. 6" AVG. DIA. ANGULAR FACED ROCK) TO BE INSTALLED ON ALL SIDE SLOPES > 3:1 AND TO LIMITS SHOWN HATCHED. SEE GENERAL NOTES.
22. COORDINATE LANDSCAPING FEATURE GRADES I.E. MOW CURBS, PLAYFIELD, PLAYGROUND, PUTTING GREEN, ETC. WITH LANDSCAPE ARCHITECT WHILE MAINTAINING CLEAR DRAINAGE PATHS SHOWN.
23. CONSTRUCT CONCRETE ALLEY GUTTER AT FLOWLINE ELEVATIONS SHOWN. SEE PAVING PLAN.
24. CONSTRUCT FIRST FLUSH RETENTION POND WITH FINAL LANDSCAPED SURFACE (TOP OF ROCK) AT ELEVATIONS SHOWN. DEFINE EDGE WITH ROCK EROSION PROTECTION.
25. CONSTRUCT ESTATE CURB THIS AREA TO PASS SHEETFLOW TO FIRST FLUSH RETENTION POND. SEE PAVING PLAN.
26. CONSTRUCT STORM DRAIN OUTLET WITH END SECTION. SEE CG5.1 FOR DETAIL.
27. CONSTRUCT STORM DRAIN PRIOR TO RETAINING WALL PLACEMENT.

LEGEND

- 79 — PROPOSED CONTOUR – 1' INCREMENT
- 75.5 — PROPOSED CONTOUR – 0.5' INCREMENT
- 78.3 — PROPOSED SPOT ELEVATION
- FLOW ARROW
- FF= 5171.00 — FINISH FLOOR ELEVATION
- ROCK EROSION CONTROL
- PROPOSED STORM DRAIN (SEE CG-501)
- FL= — FLOWLINE ELEVATION
- INV= — INVERT ELEVATION
- RETAINING WALL
- 'FIRST FLUSH' RETENTION BASIN
- GRADE BREAK / SLOPE TRANSITION
- DEEPENED/RETAINING BUILDING STEMWALL
- 15 — BUILDING NUMBER
- FINISH FLOOR GRADE TRANSITION

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DATE: MAY 24, 2016 ORB # 15-212

CG1.3

GRADING AND DRAINAGE PLAN - 3 OF 4

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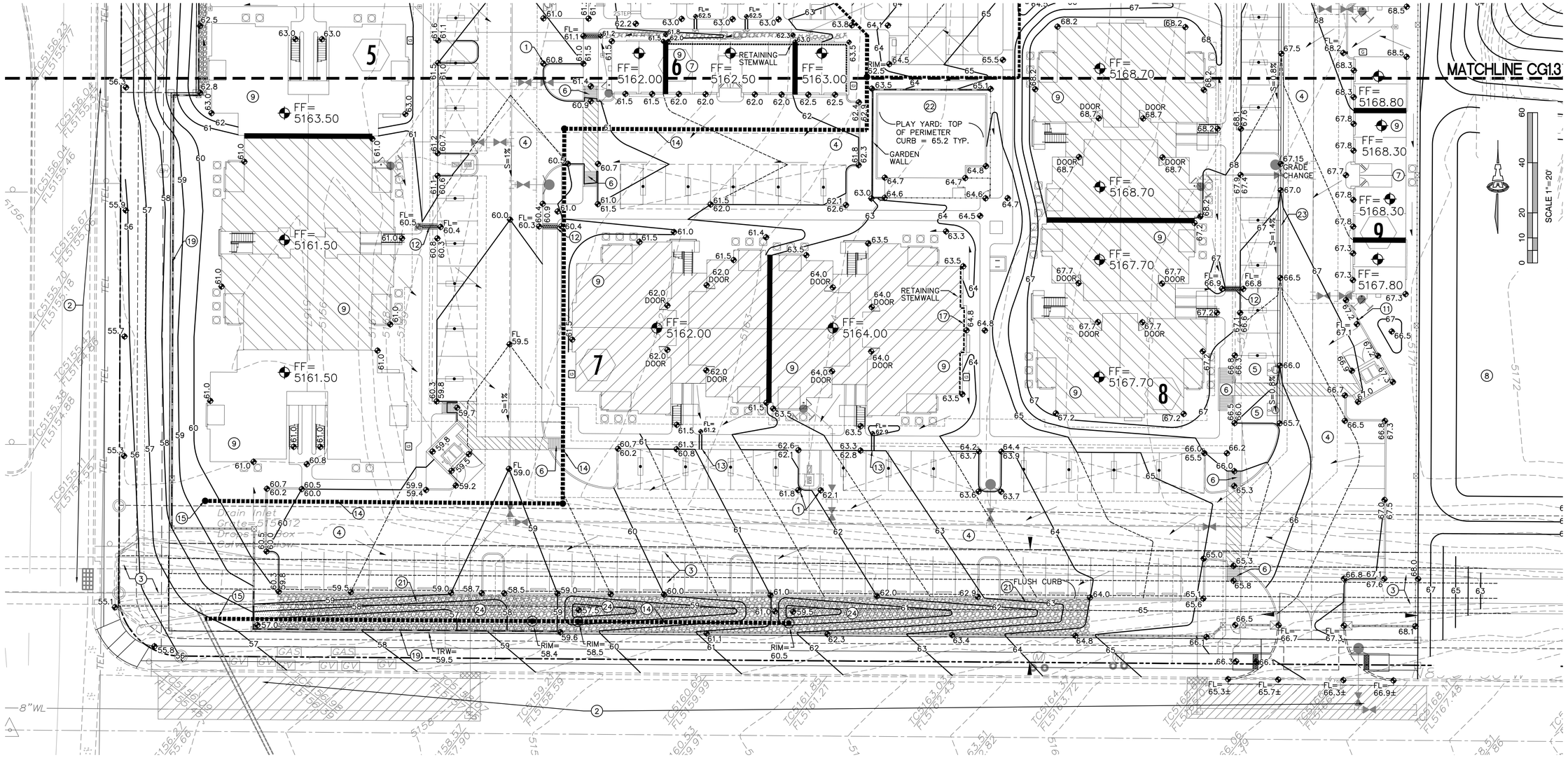

KEYED NOTES

THESE NOTES ARE REFERENCED ON SHEETS CG1.1, CG1.2, CG1.3 AND CG1.4. NOT ALL NOTES ARE USED ON EACH SHEET.

1. SPOT ELEVATIONS WITHIN GUTTER AREA REPRESENT FLOWLINE UNLESS NOTED. ADD 0.5' TYPICAL FOR TOP OF CURB / TOP OF ADJACENT WALK ELEVATIONS.
2. SEE PUBLIC WORK ORDER DRAWINGS FOR CONSTRUCTION WITHIN R.O.W. INCLUDING NEW ACCESS DRIVES WITH CONCRETE VALLEY GUTTER, HANDICAP RAMPS, PUBLIC SIDEWALKS, ETC. GRADES SHOWN FOR INFORMATION ONLY.
3. SEE PUBLIC WORK ORDER DRAWINGS FOR CONSTRUCTION OF PUBLIC STORM SEWER SYSTEM WITHIN PUBLIC DRAINAGE EASEMENT THIS AREA.
4. CONSTRUCT PAVING, CURBS, WALKS AT ELEVATIONS SHOWN. SEE PAVING PLAN, PAVING DETAILS AND ARCHITECTURAL SITE DETAILS FOR ADDITIONAL INFORMATION. NOTE THAT PAVEMENT SLOPES AND CROSS-SLOPES VARY THROUGHOUT TO ACHIEVE GRADES NECESSARY FOR ADA COMPLIANT PEDESTRIAN ACCESS; POSITIVE DRAINAGE; STREET STORMWATER CAPACITIES; PIPE COVERAGE; ETC. CONSTRUCT TO ELEVATIONS SHOWN.
5. SLOPES WITHIN HANDICAP PARKING AREAS TO BE ADA COMPLIANT. MAX. SLOPE = 2% IN ANY DIRECTION.
6. CONSTRUCT ADA COMPLAINT ACCESS RAMP. 1:12 MAX. SLOPE, 2% MAX. CROSS-SLOPE.
7. F.F. ELEVATION WITHIN UNITS WITH GARAGES REFERENCES TOP OF CONCRETE STEP AT BACK OF GARAGE. GRADE AT GARAGE DOOR SHOWN 6" BELOW F.F. TO ACCOMMODATE 4" STEP AND PAD SLOPE. TYPICAL.
8. OFF-SITE GRADING THIS AREA TO PROVIDE FOR TEMPORARY DESILTATION PONDS AND BERMS AS REQUIRED TO ROUTE OFF-SITE FLOW AROUND DEVELOPMENT.
9. BUILDING ROOF DISCHARGE TO BE RELEASED TO ALL SIDES. PROVIDE CONCRETE SPLASH BLOCK (O.E) AT DOWNSPOUT LOCATIONS (TYPICAL).
10. PROVIDE 3' WIDE FRACTURED FACE ROCK SWALE AT GRADES SHOWN. SEE CG5.1 FOR ADDITIONAL INFORMATION..
11. PROVIDE OPENING IN CURB TO PASS FLOW (SEE PLAN FOR BOTTOM WIDTH). INSTALL 3'X3' ROCK EROSION PROTECTION (DEPRESS TO PREVENT BLOCKING OF FLOW) WITHIN LANDSCAPE AREA. SEE DETAIL SHEET CG5.1.
12. CONSTRUCT 18" WIDE (BOTTOM WIDTH) COVERED SIDEWALK CULVERT PER C.O.A. STD. DWG. 2236. SEE DETAIL SHEET CG5.1 FOR ADDITIONAL CONSTRUCTION INFORMATION.
13. INSTALL TWO 4" DIA. PVC PIPE DRAINS @ 2% SLOPE THROUGH SIDEWALK. GRADE LANDSCAPE TO DIRECT FLOW TO OPENING. SEE DETAIL SHEET CG5.1.
14. CONSTRUCT PRIVATE STORM DRAIN SYSTEM. SEE SHEET CG5.2 FOR SIZES / SLOPES / INLET INFORMATION / MATERIALS.
15. EXTEND AND MAKE WATERTIGHT CONNECTION TO PUBLIC STORM SEWER AT STUB PROVIDED. SEE CG5.2 FOR ADDITIONAL INFORMATION.
16. POOL AREA GRADES SHOWN FOR GENERAL INFORMATION ONLY. POOL CONTRACTOR TO PROVIDE FINAL DESIGN GRADES / DECK DRAINS ETC.
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18. CONSTRUCT DEEPENED STEMWALL THIS AREA TO ACHIEVE EXTERIOR GRADES SHOWN. SEE ARCHITECTURAL.
19. CONSTRUCT SITE RETAINING WALL TO ACHIEVE GRADE DIFFERENCE THIS AREA. SEE ARCHITECTURAL PLAN FOR EXTENTS AND DETAILS. STRUCTURAL / WEEPHOLE DESIGN BY OTHERS.
20. CONSTRUCT 6" STEP(S) PER PLAN. SEE ARCHITECTURAL.
21. EROSION CONTROL (MIN. 6" AVG. DIA. ANGULAR FACED ROCK) TO BE INSTALLED ON ALL SIDE SLOPES > 3:1 AND TO LIMITS SHOWN HATCHED. SEE GENERAL NOTES.
22. COORDINATE LANDSCAPING FEATURE GRADES I.E. MOW CURBS, PLAYFIELD, PLAYGROUND, PUTTING GREEN, ETC. WITH LANDSCAPE ARCHITECT WHILE MAINTAINING CLEAR DRAINAGE PATHS SHOWN.
23. CONSTRUCT CONCRETE ALLEY GUTTER AT FLOWLINE ELEVATIONS SHOWN. SEE PAVING PLAN.
24. CONSTRUCT FIRST FLUSH RETENTION POND WITH FINAL LANDSCAPED SURFACE (TOP OF ROCK) AT ELEVATIONS SHOWN. DEFINE EDGE WITH ROCK EROSION PROTECTION.
25. CONSTRUCT ESTATE CURB THIS AREA TO PASS SHEETFLOW TO FIRST FLUSH RETENTION POND. SEE PAVING PLAN.
26. CONSTRUCT STORM DRAIN OUTLET WITH END SECTION. SEE CG5.1 FOR DETAIL.
27. CONSTRUCT STORM DRAIN PRIOR TO RETAINING WALL PLACEMENT.

LEGEND

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- 75.5 — PROPOSED CONTOUR – 0.5' INCREMENT
- 78.3 — PROPOSED SPOT ELEVATION
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- FF= 5171.00 — FINISH FLOOR ELEVATION
- ROCK EROSION CONTROL
- PROPOSED STORM DRAIN (SEE CG-501)
- FL= — FLOWLINE ELEVATION
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CG1.4

GRADING AND DRAINAGE PLAN - 4 OF 4

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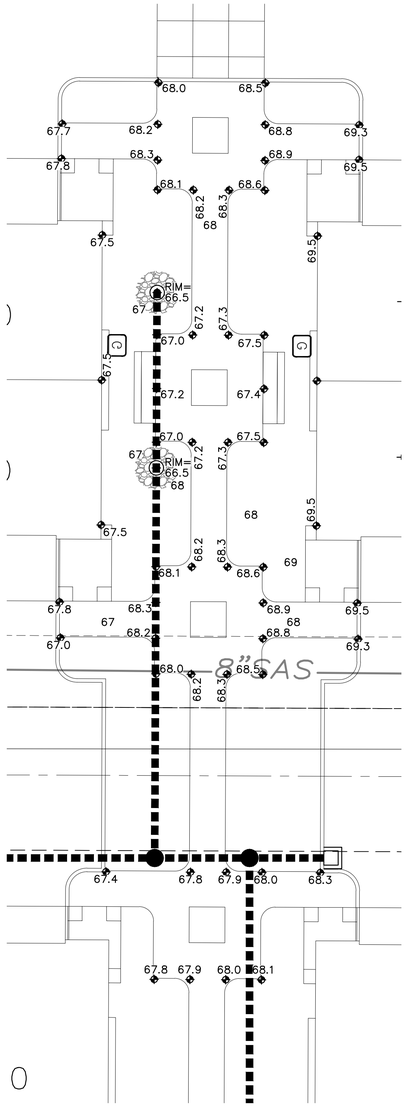
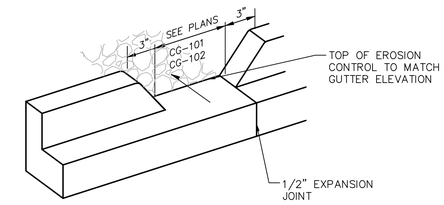


ENLARGED GRADING DETAIL - SEE CG1.1

SCALE: 1"=10'

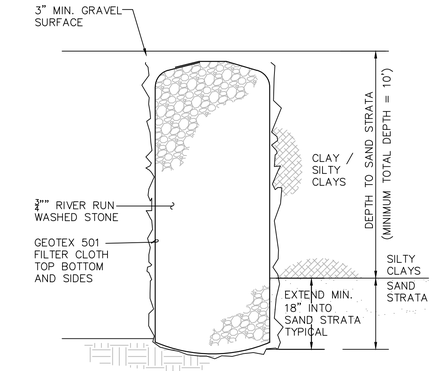


GENERAL NOTES

1. EDGES NOT SPECIFICALLY DIMENSIONED SHALL BE SHAPED WITH A 3/8" EDGING TOOL.

CURB OPENING

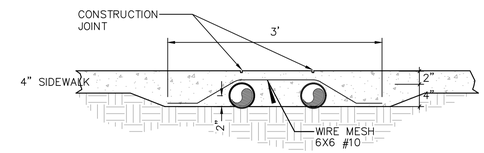
SCALE: N.T.S.

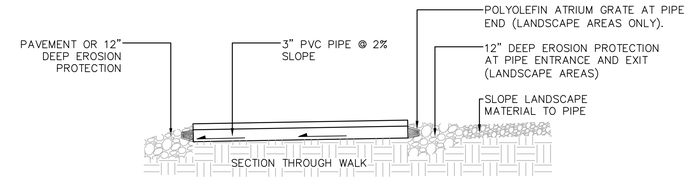


PERCOLATION TRENCH

18" WIDE X 48" LONG X DEPTH SHOWN (TYPICAL)

SCALE: N.T.S.



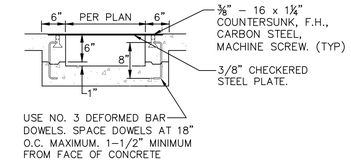


PIPES THROUGH WALK

SCALE: N.T.S.

WELD ⅛" THICK, ⅝" MIN. DIAMETER OVER ALL SCREWS. COMPLETELY COVER SCREW HEADS. GRIND EDGES SMOOTH.

FOR SECURING PLATE USE 1"X5" S.S. ROD ANCHOR, "RED HEAD MULTI-SET II SRM-38 ANCHOR" OR APPROVED EQUAL. INSTALL PER MANUFACTURER'S INSTRUCTIONS AT MAX. 24" O.C., A MINIMUM OF 2 PER SIDE AND ONE WITHIN 6" OF EACH END.



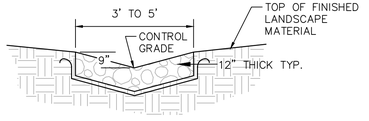
SECTION A-A

12"ϕ AND 18ϕ STORM DRAIN LINE OUTFALL WITH END SECTIONS

SEE SHEET CG5.1 FOR LOCATION

SCALE: N.T.S.

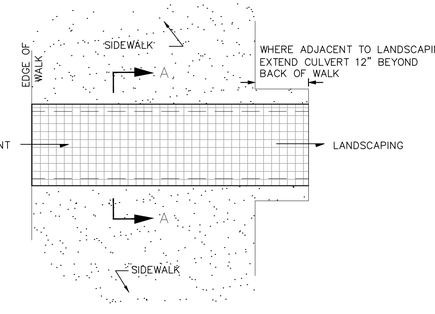
CONSTRUCT ALL SWALES AND FRACTURED FACE ROCK EROSION PROTECTION BELOW ADJACENT GRADE TO ENSURE RUNOFF CAN BE CAPTURED AND CONVEYED PROPERLY



- VARY FRACTURED FACE ROCK SIZE BETWEEN 4" AND 8" DIA. (AVG.=6").
- PLACE GEOTEX 501 NON-WOVEN GEOTEXTILE (O.E.) BENEATH ALL EROSION PROTECTION.

ROCK SWALE AND ROCK EROSION PROTECTION

SCALE: N.T.S.



PLAN

CONSTRUCT PER C.O.A. STD. DWG. 2236 WITH MODIFICATIONS AS SHOWN ON THIS DETAIL

COVERED SIDEWALK CULVERT

SCALE: N.T.S.

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CG5.1

GRADING AND DRAINAGE DETAILS

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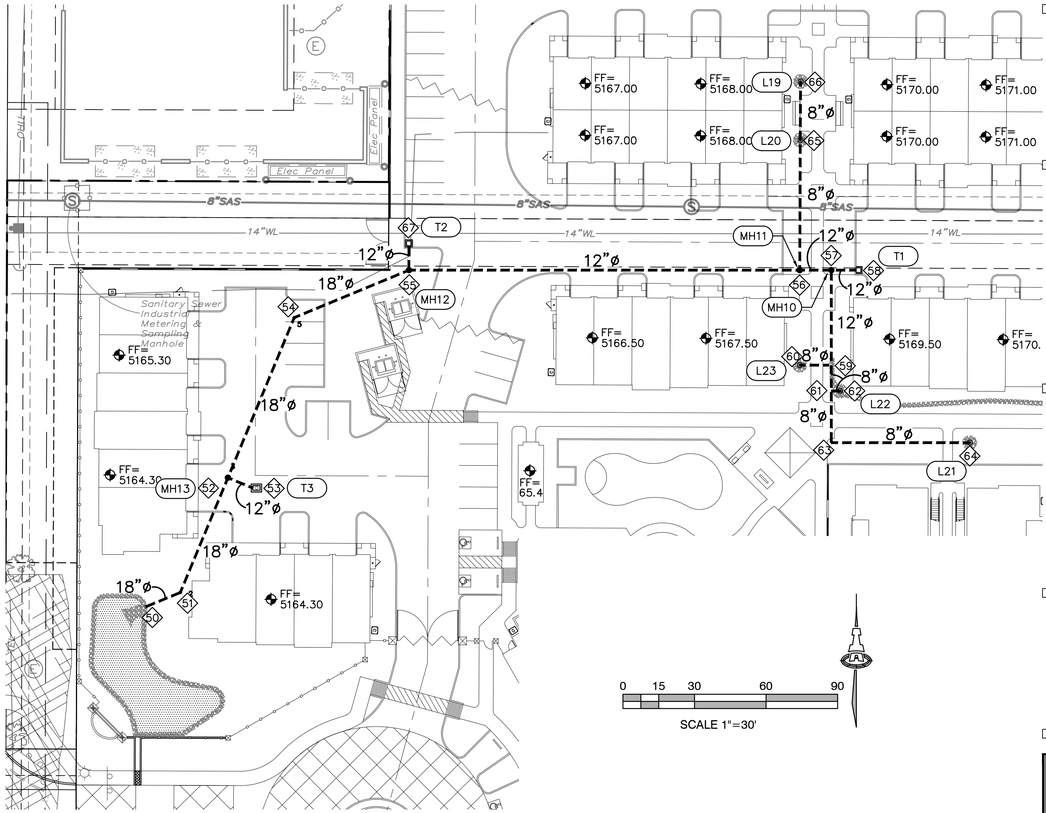
SOUTH STORM DRAIN LAYOUT TABLE

Point	X	Y	INVERT	LABEL	DESCRIPTION	
50	1540513.5692	1525327.5906	5159.00		18" END SECTION	54
51	1540528.0290	1525333.5801	5159.16		18" 45° BEND	55
52	1540547.9814	1525381.7496	5159.70	MH13	24" NB, SOLID	56
53	1540559.9458	1525377.4151	5159.80	T3	18" NB, 24"X36" TRF	57
54	1540575.7688	1525448.8342	5160.45		18" 45° BEND	58
55	1540623.8721	1525468.7592	5160.99	MH12	18" NB, DOME	59
56	1540787.6923	1525468.7592	5162.68	MH11	18" NB, SOLID	60
57	1540800.9447	1525468.7592	5162.95	MH10	18" NB, SOLID	61
58	1540812.3306	1525468.7592	5163.30	T1	18" NB, 24"X24" TRF	62
59	1540800.9447	1525428.9301	5163.73		12"X8" TEE, 12"X8" ADPT	63
60	1540787.6923	1525428.9301	5163.90	L23	8" ID, DOME	64
61	1540800.9447	1525418.0732	5163.94		8" TEE	65
62	1540804.5504	1525418.0732	5164.10	L22	8" ID, DOME	66
63	1540800.9447	1525396.4301	5164.36		8" 45° BEND	67
64	1540858.9447	1525396.4301	5165.50	L21	8" ID, DOME	
65	1540787.9216	1525523.2804	5163.25	L20	8" ID, DOME	
66	1540788.0246	1525547.7802	5163.50	L19	8" ID, DOME	
67	1540623.8721	1525479.9759	5161.20	T2	18" NB, 24"X36" TRF	

XX"ø NB = XX" DIAMETER NYLOPLAST BASIN WITH 2' SUMP (SEE NB DIAGRAMS FOR ORDER INFO)
DOME = LOCKING DOMED GRATE
SOLID = LOCKING SOLID GRATE
TRF = ROAD AND HIGHWAY STRUCTURE
ID = INLINE DRAIN
ADPT = PIPE ADAPTER



NYLOPLAST BASIN DESIGN INFORMATION (MH10 THRU MH13)

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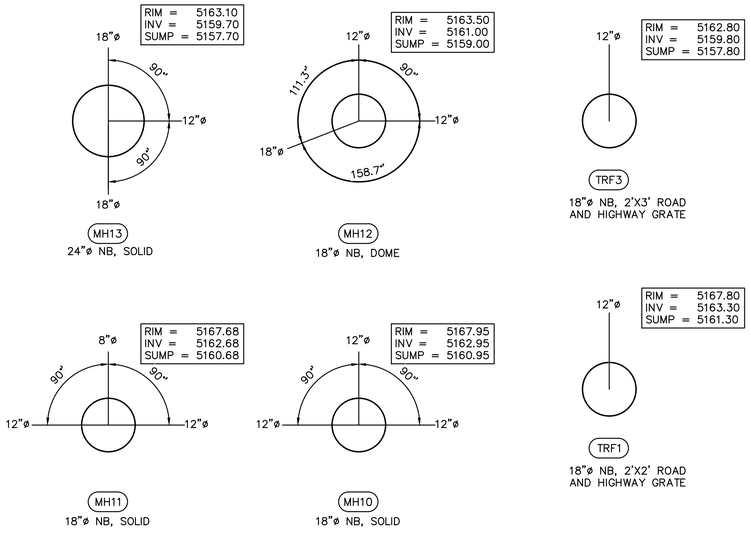


LEGEND

◇1	LAYOUT CONTROL POINT (SEE TABLE THIS SHEET)
------	STORM DRAIN PIPE
18"ø	PIPE DIAMETER
MHX	NYLOPLAST BASIN MANHOLE WITH 2' SUMP
LX	ADS INLINE DRAIN
TX	ADS ROAD AND HIGHWAY INLET

PHASING

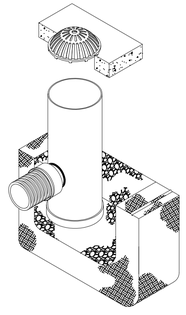
PRIOR TO RECEIVING ENGINEER'S CERTIFICATION FOR COMPLETION OF A PHASE, ALL STORM DRAIN IMPROVEMENTS IMPACTING THAT PHASE MUST BE CONSTRUCTED AND OPERATIONAL TO THE OUTLET.

STORM DRAIN LEGEND AND NOTES

FOR USE WITH SHEETS CG5.2 AND CG5.3

MH# NYLOPLAST MANHOLE INLET WITH DOMED GRATE

ALL MANHOLE INLETS (MH) TO INCLUDE:
- __"ø ADS NYLOPLAST BASIN (SEE DESIGN)
- 2' SUMP
- LOCKING GRATE (SEE LAYOUT TABLE)
- 8" WIDE X 6" THICK CONCRETE COLLAR



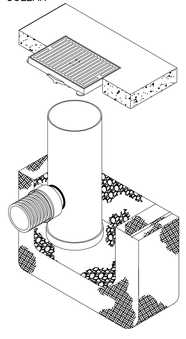
L# LANDSCAPE STORM DRAIN INLET

ALL LANDSCAPE AREA INLETS (LD) TO INLCUDE:
- ADS INLINE DRAIN
- LOCKING DOMED GRATE
- 8" WIDE X 6" DEEP CONCRETE COLLAR

SEE STORM DRAIN LAYOUT TABLE FOR INLINE DRAIN DIAMETER. ALL INLINE DRAIN OUTLETS TO BE 8"ø.

T# 2 FT X 3 FT ROAD & HIGHWAY STRUCTURE

ALL ROAD & HIGHWAY STRUCTURES TO INCLUDE:
- 18"ø ADS NYLOPLAST BASIN
- 2' SUMP
- __"X___" LOCKING H-20 RATED GRATE (SEE DESIGN)
- 18" WIDE X 8" THICK CONCRETE COLLAR



A. ALL PRIVATE STORM DRAIN LINES AND FITTINGS SHALL BE THE FOLLOWING MATERIAL:
- < 12" DIA. SHALL BE EITHER ADS N-12 WT PIPE OR PVC SDR 35.
- = 12" DIA. SHALL BE EITHER ADS MEGA GREEN WT PIPE OR PVC SDR 35.
- > 12" DIA. SHALL BE ADS MEGA GREEN WT PIPE.

B. INSTALL ALL STORM DRAIN INLETS AND PIPE PER MANUFACTURER'S SPECIFICATIONS.

C. STORM DRAIN SYSTEM WILL REQUIRE REGULAR MAINTENANCE TO ENSURE PROPER FUNCTIONING DURING STORM EVENTS. ENGINEER RECOMMENDS THAT OWNER PUT IN PLACE INSPECTION AND MAINTENANCE REQUIREMENTS SCHEDULED TO OCCUR MONTHLY AND AFTER EACH STORM EVENT.

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CG5.2

STORM DRAIN DESIGN AND DETAILS 1 OF 2

NYLOPLAST BASIN DESIGN INFORMATION (MH1 THRU MH9)

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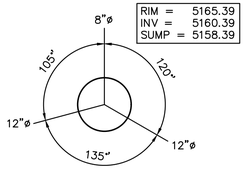
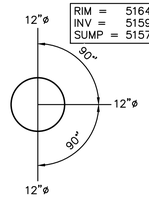
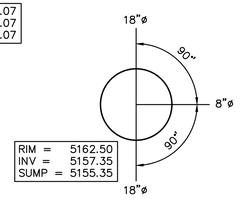


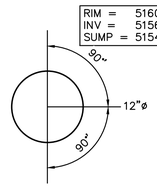
MH1
18"ø NB, DOME



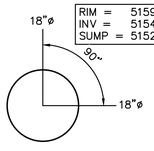
MH2
18"ø NB, SOLID



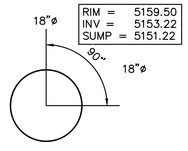
MH3
24"ø NB, SOLID



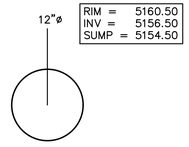
MH4
24"ø NB, SOLID



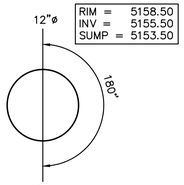
MH5
24"ø NB, SOLID



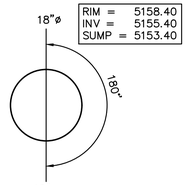
MH6
24"ø NB, SOLID



MH7
24"ø NB, SOLID



MH8
24"ø NB, SOLID



MH9
24"ø NB, SOLID

SOUTH STORM DRAIN LAYOUT TABLE

Point	X	Y	INVERT	LABEL	DESCRIPTION
1	1540486.7016	1524790.7785	5133.22	MH6	24"ø NB, SOLID
2	1540629.4040	1524789.7200	5154.58	MH5	24"ø NB, SOLID
3	1540630.0330	1524939.2890	5156.00	MH4	24"ø NB, SOLID
4	1540750.7274	1524938.7815	5157.15		18" 90° BEND
5	1540750.8163	1524959.9375	5157.35	MH3	24" NB, SOLID
6	1540811.5498	1524959.6822	5158.88		8" 90° BEND
7	1540811.6780	1524990.1666	5159.94		8" TEE
8	1540814.6779	1524990.1540	5160.00	L15	8" ID, DOME
9	1540811.7366	1525004.3455	5160.00	L14	8" ID, DOME
10	1540750.8872	1524976.7812	5157.51		18" 45° BEND, 18"X12" ADPT
11	1540731.2989	1524996.3886	5157.77	L13	8" ID, DOME
12	1540727.7783	1524999.9390	5157.82		12" 45° BEND
13	1540727.9501	1525040.7949	5158.21	L12	8" ID, DOME
14	1540728.3317	1525131.5439	5159.07	MH2	18" NB, SOLID
15	1540813.7021	1525131.1849	5160.78		12" 90 BEND
16	1540813.7021	1525171.7127	5162.17		12" 45° BEND
17	1540823.5590	1525181.5696	5162.55	L11	8" ID, DOME
18	1540829.2852	1525187.2957	5162.93		12"X8" TEE, 12"X8" ADPT
19	1540821.9875	1525194.5934	5163.50	L10	8" ID, DOME
20	1540837.3832	1525195.3938	5163.32		8" 45° BEND
21	1540857.0967	1525195.3109	5164.00	L9	8" ID, DOME
22	1540728.4523	1525160.2421	5159.34		12"X8" 45° WYE
23	1540725.8172	1525162.8995	5159.50	L8	8" ID, DOME
24	1540728.4579	1525161.5706	5159.35		12" 45° BEND
25	1540745.2149	1525178.1873	5159.58		12"X8" 45° WYE
26	1540745.2149	1525183.1873	5159.88	L7	8" ID, DOME
27	1540745.2149	1525208.1873	5160.50	L6	8" ID, DOME
28	1540756.2839	1525189.1635	5159.73		12" 45° BEND
29	1540756.5623	1525255.3783	5160.36		12" 45° BEND
30	1540759.1881	1525257.9821	5160.39	MH1	18" NB, DOME
31	1540792.4687	1525257.8787	5160.71		12" 90° BEND
32	1540792.6137	1525292.3626	5161.04		12"X8" TEE
33	1540779.4317	1525292.4180	5161.30	L3	8" ID, DOME
34	1540792.6334	1525297.0619	5161.08		12"X8" TEE, 12"X8" ADPT
35	1540802.8970	1525297.0187	5161.29	L2	8" ID, DOME
36	1540792.8174	1525340.8233	5161.50		8" 90° BEND
37	1540739.9148	1525341.0457	5162.00	L1	8" ID, DOME
38	1540744.4325	1525283.7896	5160.90	L5	8" ID, DOME
39	1540727.1731	1525313.9761	5161.50	L3	8" ID, DOME

Point	X	Y	INVERT		DESCRIPTION
40	1540486.6583	1524743.7779	5154.00		CONNECT TO PWO MH
41	1540617.2124	1524742.8095	5155.40	MH9	24" NB, DOME
42	1540635.3108	1524742.6753	5155.60	MH8	24" NB, DOME
43	1540719.6435	1524742.0497	5156.50	MH7	24" NB, DOME

XX" NB = XX" DIAMETER NYLOPLAST BASIN WITH 2' SUMP (SEE NB DIAGRAMS FOR ORDER INFO)
DOME = LOCKING DOMED GRATE
SOLID = LOCKING SOLID GRATE
TRF = NYLOPLAST ROAD AND HIGHWAY STRUCTURE W/ 2' SUMP
ID = INLINE DRAIN
ADPT = PIPE ADAPTER

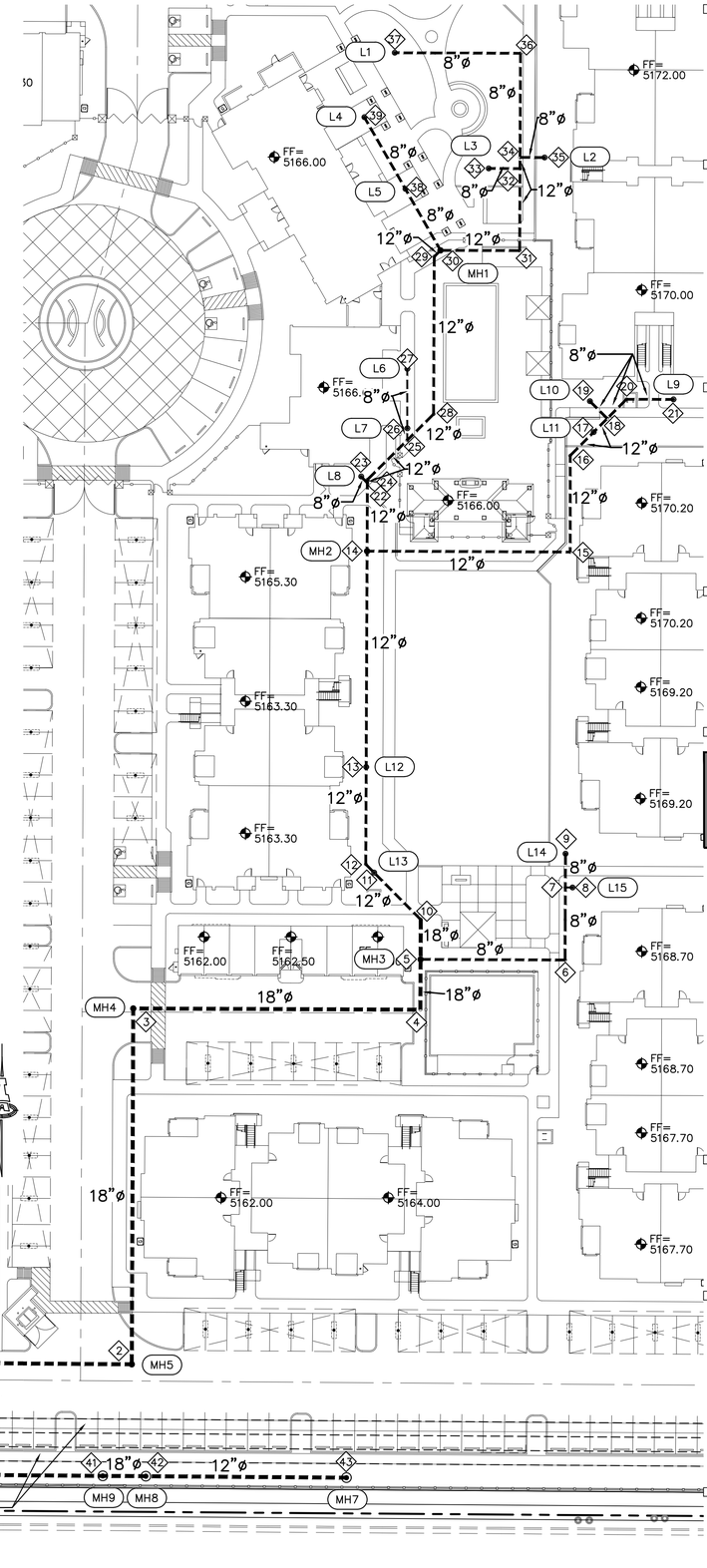
LEGEND

◇1	LAYOUT CONTROL POINT (SEE TABLE THIS SHEET)
----------	STORM DRAIN PIPE
18"ø	PIPE DIAMETER
(MHX)	NYLOPLAST BASIN MANHOLE WITH 2' SUMP
(LX)	ADS INLINE DRAIN

PHASING

SEE CONSTRUCTION PHASE BOUNDARIES ON SHEET CG1.0.

PRIOR TO RECEIVING ENGINEER'S CERTIFICATION FOR COMPLETION OF A PHASE, ALL STORM DRAIN IMPROVEMENTS IMPACTING THAT PHASE MUST BE CONSTRUCTED AND OPERATIONAL TO THE OUTLET.



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2129 CG-50X.dwg Jun 03,2016

REVISIONS

FIRST CITY SUBMITTAL

DATE: MAY 24, 2016 ORB # 15-212

CG5.3

STORM DRAIN DESIGN AND DETAILS 2 OF 2