CITY OF ALBUQUERQUE

PLANNING DEPARTMENT – Development Review Services

Richard J. Berry, Mayor

August 31, 2016

Fred C. Arfman, P.E.
Isaacson & Arfman, P.A.
128 Monroe St NE
Albuquerque, NM 87108

RE: **Northpoint Townhomes (B18D001C)**
Supplemental Information (Report), Engineer's Stamp Date 8-24-16
Grading and Drainage Plan, Engineer's Stamp Date 8-24-16

Dear Mr. Arfman:

Based upon the information provided in your submittal received 8-29-16, the above referenced plan is approved for ESC Permit and Building Permit. Please attach a copy of this approved plan in the construction sets when submitting for a building permit.

Prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist will be required.

If you have any questions, you can contact me at 924-3695.

Sincerely,

Rita Harmon, P.E.
Senior Engineer, Planning Dept.
Development Review Services

Orig: Drainage file

PO Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

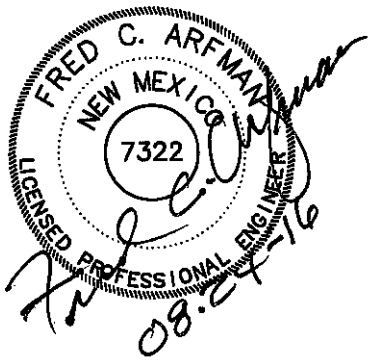
AUGUST 26, 2016

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 July 2016 with Engineer's Stamp date 07/21/16 ("Report"). See APPENDIX A for excerpts from this Report.

Per the Drainage Master Plan (DMP) – Proposed Conditions:

- The overall property slopes east to west, but a high point running down the middle of the property directs storm water to the north and south... The overall site is allowed free discharge to the North or South La Cueva Arroyos.

- The DMP assumes that all projects developed with buildings or roads have 85% impervious surface, the maximum allowed by zoning. (85% D, 15%C) The Site Development Plans for Building Permit will determine the actual impervious area allowed. These percentages are conservative to provide a margin of safety. The allowable discharge per acre is 4.78 cfs/acre as designated in the Proposed Basin & Analysis Point (AP) Summary Table in Appendix B. All private storm drains shall be sized to carry this developed discharge rate from contributing basin areas.

- The South La Cueva Arroyo will be redirected underground in a new alignment via a storm drain system. Any project adjacent to the South La Cueva Arroyo is responsible for designing and building that portion of the new double storm drain. If an upstream portion is built, all downstream segments must also be constructed.

- The subject property is located on a former landfill. Due to the subject property being on a former landfill, certain precautionary measures may need to be taken to ensure the health and safety of the public. Recommendations made by a professional engineer with expertise in

landfills and landfill gas issues (as required by the most current version of the Interim Guidelines for Development within City Designated Landfill Buffer Zones) shall be consulted prior to development of the site.

- 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.
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First Flush:

Typically, stormwater control measures are required to provide management of 'first flush' which discharges directly to a public storm drainage system.

Per an interoffice memorandum from COA Environmental Health Department dated August 9, 2016:

> *This project and other projects located on the former Coronado Landfill shall not include first flush ponds (this includes properties bounded by Venice Ave. on the north, Modesto Ave. on the south, Interstate 25 on the east and San Mateo Blvd. on the west.)*

COA Hydrology understands this requirement to mean that no defined retention ponding areas (first flush, extra depth water harvesting within landscaping) should occur on the designated properties.

A copy of memorandum between Paul Olson, Environmental Health and Rita Harmon, Senior Engineer, regarding waiving requirement for all ponding is provided on the next page.

City of Albuquerque

Environmental Health Department

Richard J. Berry, Mayor

Interoffice Memorandum

August 9, 2016

To: **Rita Harmon, Senior Engineer, Planning Department, Development Review Division**

From: **Paul Olson, Engineer, Environmental Health Department**

Subject: **INTERNAL MEMO – Coronado Landfill Site**

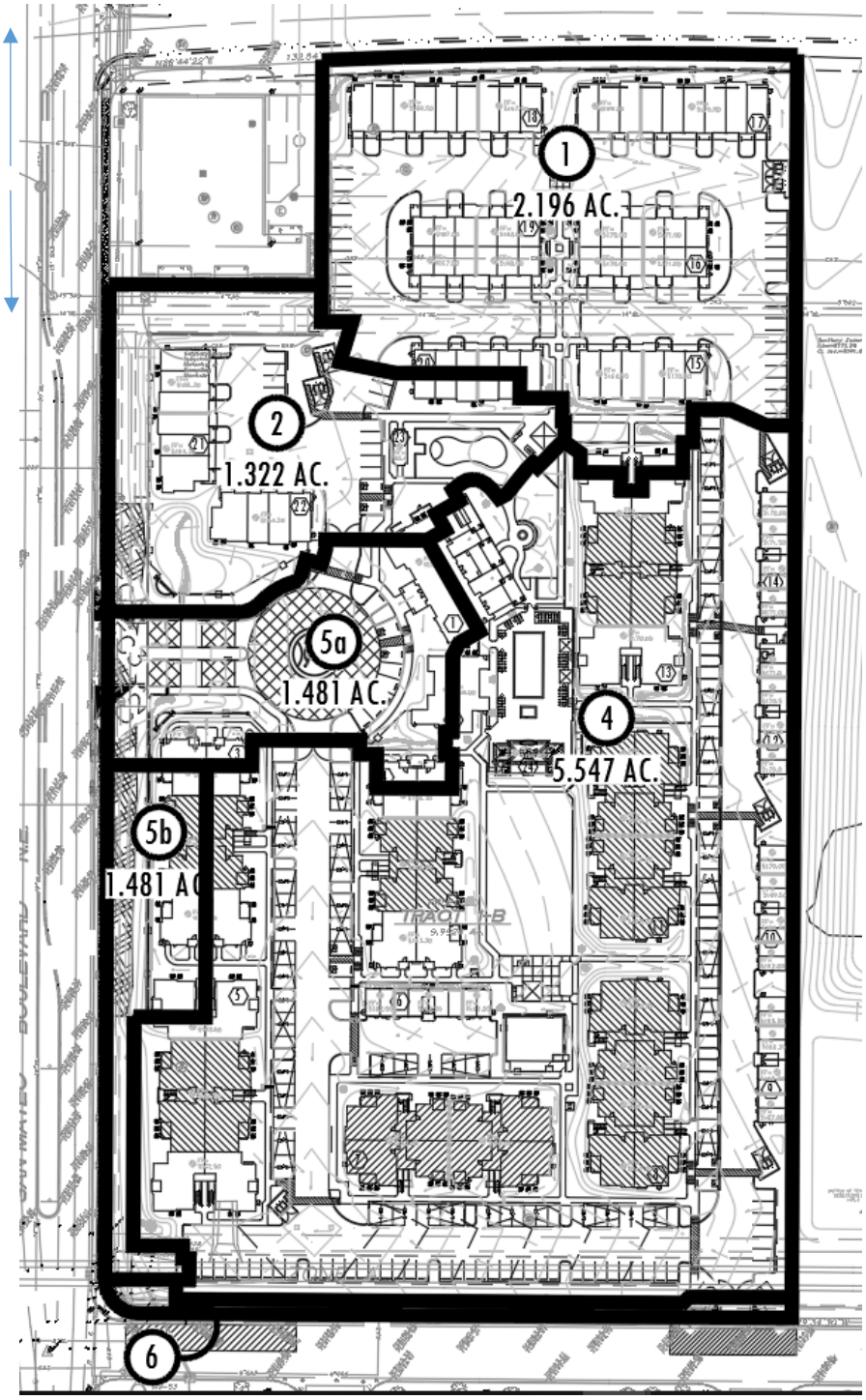
I am requesting that swales and first flush ponds, that may increase infiltration not be required on the former Coronado Landfill site. The site is shown on the image below and includes properties bounded by Venice Ave on the north, Modesto Ave on the south, Interstate 25 on the east, and San Mateo Blvd on the west.

The Broadstone Development Project at former I-25 Studios on San Mateo and Modesto brought to my attention swales and first flush infiltration ponds at this former landfill. I am requesting that this project and other projects located on the former Coronado Landfill not include first flush ponds that will increase the amount of water infiltrated on these sites.

While the site has had the majority of the trash removed, there is the potential for gases released from the landfill to still be in the vadose zone. Prior to allowing development, testing and analysis is done to make sure that any pollutants in the vadose zone will not present health risks from vapor intrusion. However, there remains the potential risk for groundwater contamination. Increasing infiltration through the vadose zone increases this risk.

Proposed Drainage Basins:

The proposed development grading establishes six drainage basins:



Basin 1:
9.9 cfs discharging to North La Cueva Arroyo (via temporary surface swale and/or future private storm drain system.)

Basin 2:
5.9 cfs discharging to San Mateo Blvd. at north side of main entrance.

Basin 3:
NOTE USED

Basin 4:
25.9 cfs discharging via private Storm Drain to South La Cueva (northwest stub).

Basin 5a:
3.7 cfs discharging to San Mateo Blvd. at main entrance.

Basin 5b:
1.9 cfs discharging to San Mateo Blvd. approx.halfway between entrance drive and existing inlet.

Basin 6:
0.7 cfs discharging to Modesto Ave. as sheetflow.

Summary of discharge to San Mateo Blvd. directed south to existing storm drain inlet at intersection of Modesto Ave.

Main entrance:
Basins 2 + 5a = 9.6 cfs.

Downstream discharge
Basin 5b = 1.9 cfs.

Total discharge to San Mateo South of high point

9.6 cfs + 1.9 cfs = 11.5 cfs.

BASIN NO. 1 — **DESCRIPTION** — Discharging to the North

Area of basin flows = 95643 SF = 2.2 Ac.

The following calculations are based on Treatment areas as shown in table to the right

LAND TREATMENT	
A =	0%
B =	6%
C =	24%
D =	70%

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 2.02 in.

Sub-basin Volume of Runoff (see formula above)

V_{360} = 16074 CF

Sub-basin Peak Discharge Rate: (see formula above)

Q_P = 9.9 cfs

BASIN NO. 2 — **DESCRIPTION** — To San Mateo Blvd.

Area of basin flows = 57590 SF = 1.3 Ac.

The following calculations are based on Treatment areas as shown in table to the right

LAND TREATMENT	
A =	0%
B =	6%
C =	24%
D =	70%

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 2.02 in.

Sub-basin Volume of Runoff (see formula above)

V_{360} = 9679 CF

Sub-basin Peak Discharge Rate: (see formula above)

Q_P = 5.9 cfs

BASIN NO. 3 — **DESCRIPTION** — NOT USED

BASIN NO. 4 — **DESCRIPTION** — To Storm Drain - to enter South La Cueva (north stub)

Area of basin flows = 250593 SF = 5.8 Ac.

The following calculations are based on Treatment areas as shown in table to the right

LAND TREATMENT	
A =	0%
B =	6%
C =	24%
D =	70%

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 2.02 in.

Sub-basin Volume of Runoff (see formula above)

V_{360} = 42116 CF

Sub-basin Peak Discharge Rate: (see formula above)

Q_P = 25.9 cfs

BASIN NO. 5a — **DESCRIPTION** — To San Mateo Blvd.

Area of basin flows = 36104 SF = 0.8 Ac.

The following calculations are based on Treatment areas as shown in table to the right

LAND TREATMENT	
A =	0%
B =	6%
C =	24%
D =	70%

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 2.02 in.

Sub-basin Volume of Runoff (see formula above)

V_{360} = 6068 CF

Sub-basin Peak Discharge Rate: (see formula above)

Q_P = 3.7 cfs

BASIN NO. 5b — **DESCRIPTION** — To San Mateo Blvd.

Area of basin flows = 19427 SF = 0.4 Ac.

The following calculations are based on Treatment areas as shown in table to the right

LAND TREATMENT	
A =	0%
B =	0%
C =	50%
D =	50%

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 1.83 in.

Sub-basin Volume of Runoff (see formula above)

V_{360} = 2955 CF

Sub-basin Peak Discharge Rate: (see formula above)

Q_P = 1.9 cfs

BASIN NO. 6 — **DESCRIPTION**

Area of basin flows = 6558 SF = 0.2 Ac.

The following calculations are based on Treatment areas as shown in table to the right

LAND TREATMENT	
A =	0%
B =	6%
C =	24%
D =	70%

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 2.02 in.

Sub-basin Volume of Runoff (see formula above)

V_{360} = 1102 CF

Sub-basin Peak Discharge Rate: (see formula above)

Q_P = 0.7 cfs

Basin 1 Storm Drain:

The Basin 1 storm drain system is designed to accept 9.9 cfs for routing to the north. In the temporary condition, the system will daylight at grade and be carried within a temporary compacted earth swale to the North La Cueva Arroyo. As the property to the north develops, this flow will be routed through the property via private storm drain system. Per Environmental Health, no ponding is allowed on this property or the property to the north.

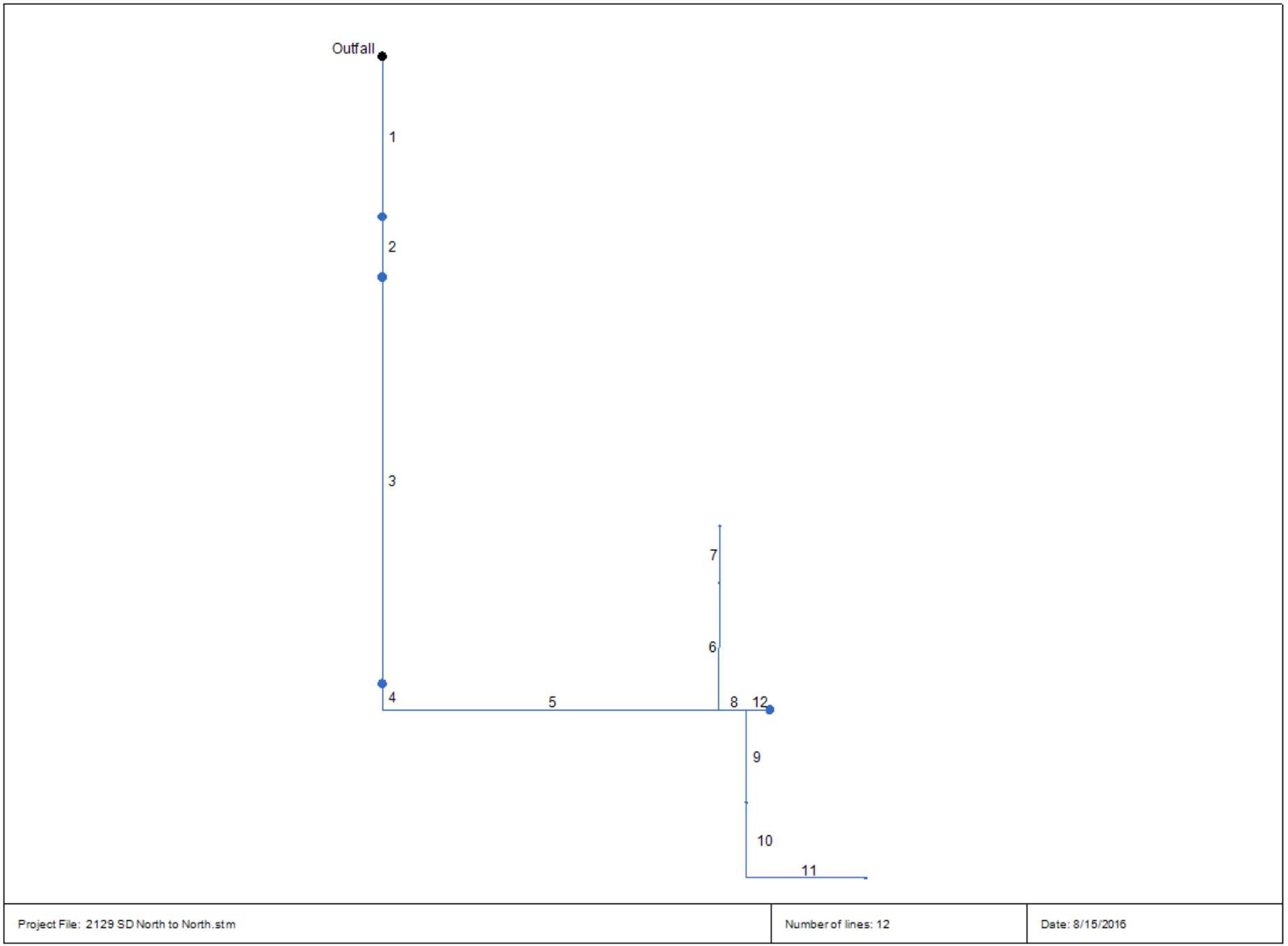
Storm Sewer Summary Report

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		9.90	18	Cir	69.000	5158.18	5158.90	1.043	5159.38	5160.11	0.10	5160.11	End	Manhole
2	(2)	9.90	18	Cir	26.000	5158.90	5159.20	1.155	5160.11	5160.41	0.10	5160.41	1	Manhole
3	(2)(2)	9.90	18	Cir	175.000	5159.20	5160.95	1.000	5160.41	5162.16	0.10	5162.16	2	Manhole
4	(2)	6.50	12	Cir	11.220	5160.95	5161.10	1.336	5162.16*	5162.48*	1.06	5163.55	3	None
5		4.00	12	Cir	163.820	5161.00	5162.69	1.032	5163.55*	5165.31*	0.40	5165.71	4	None
6		1.00	8	Cir	54.500	5162.69	5163.25	1.028	5165.71*	5166.03*	0.02	5166.05	5	Manhole
7		0.50	8	Cir	24.500	5163.25	5163.50	1.020	5166.05*	5166.08*	0.03	5166.12	6	Manhole
8		3.00	12	Cir	13.250	5162.69	5162.95	1.964	5165.71*	5165.79*	0.23	5166.02	5	Manhole
9		1.00	12	Cir	39.875	5162.95	5163.73	1.956	5166.02*	5166.05*	0.00	5166.05	8	Manhole
10		0.50	8	Cir	32.500	5163.73	5164.36	1.938	5166.05*	5166.10*	0.03	5166.13	9	None
11		0.50	8	Cir	58.000	5164.36	5165.50	1.966	5166.13	5166.17	0.03	5166.20	10	Manhole
12		2.00	12	Cir	11.400	5162.95	5163.30	3.067	5166.02*	5166.05*	0.10	5166.15	8	Manhole

2129 SD North | Number of lines: 12 | Run Date: 8/15/2016

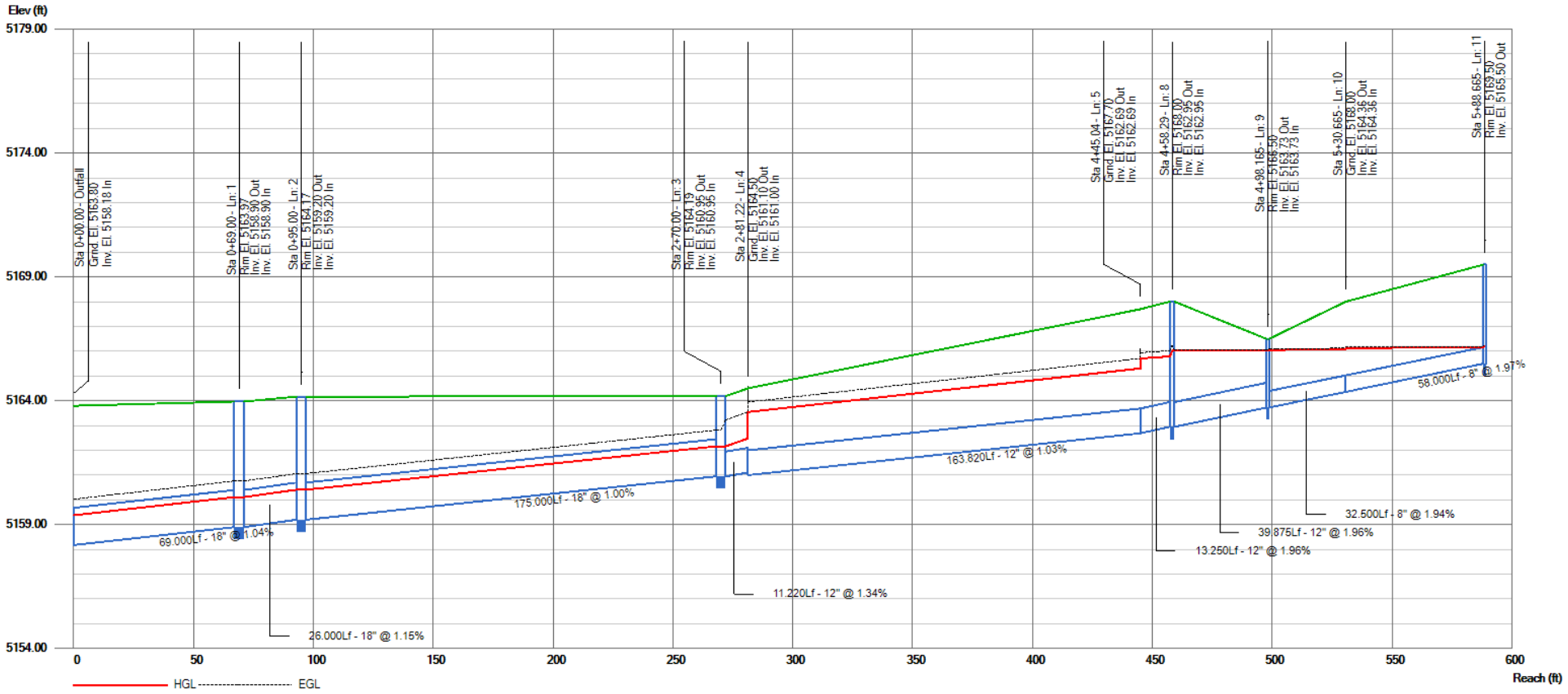
NOTES: Return period = 2 Yrs. ; *Surcharged (HGL above crown).

2129 SD North



Project File: 2129 SD North to North.stm	Number of lines: 12	Date: 8/15/2016

Basin 1 Storm Drain Profile:



Basin 2 Storm Drain:

A single culvert will pass approximately 50% of the Basin 2 flow (3.0 cfs) between Buildings 21 and 22. This culvert will daylight into a rock-lined swale which will pass the flow to the main entrance drive via a covered sidewalk culvert. Flow will continue to San Mateo Blvd. to follow historic flowpath south to the existing storm drain inlet.

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		3.00	12	Cir	65.600	5159.40	5160.00	0.915	5160.09	5160.74	n/a	5160.74	End	Manhole

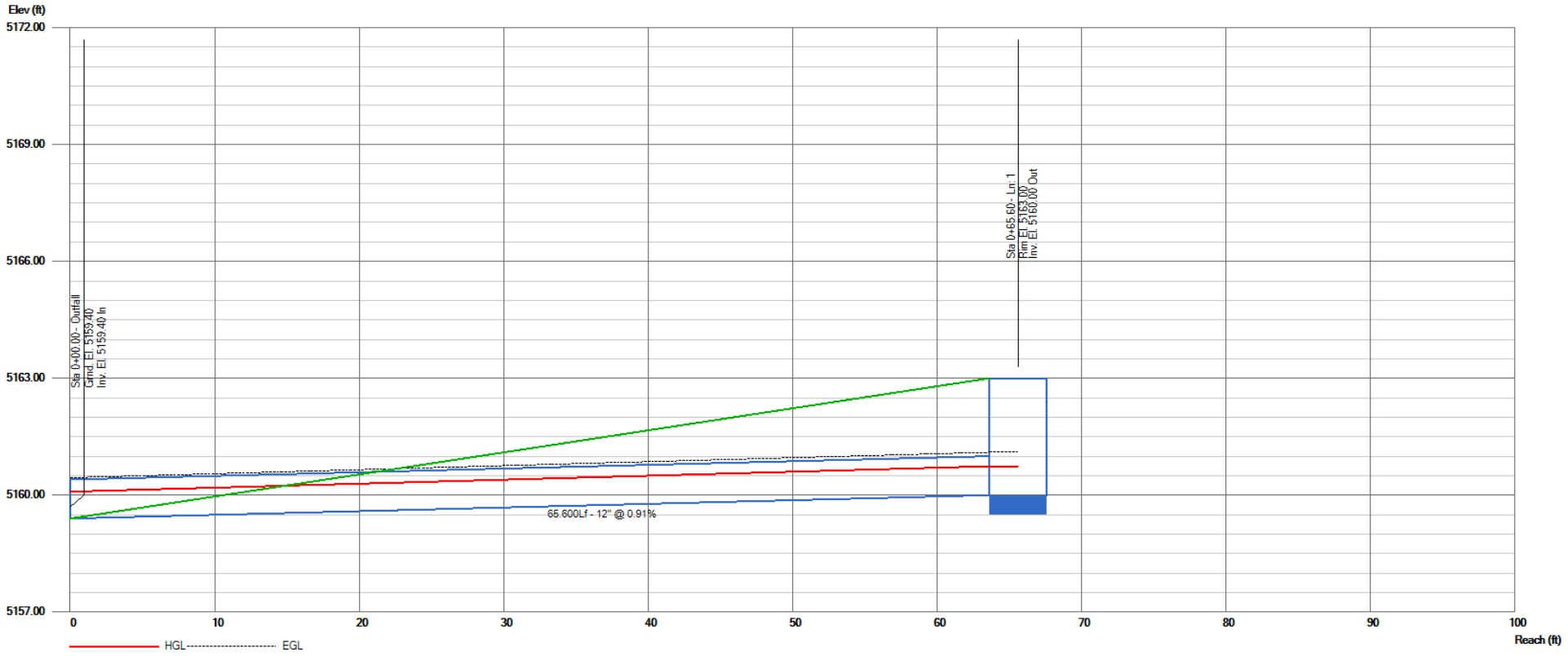
2129 Far South to SLCA | Number of lines: 1 | Run Date: 8/15/2016

NOTES: Return period = 2 Yrs.

2129 Far South to SLCA

Project File: 2129 BASIN 2 TO SM.stm	Number of lines: 1	Date: 8/15/2016

Basin 2 Storm Drain Profile:



Basin 3 – NOT USED

Basin 4 Storm Drain:

The Basin 4 storm drain system is designed to accept 25.9 cfs discharging to the stub provided on the north 72” pipe of the South La Cueva arroyo. The invert and HGL of the stub at the storm drain manhole has been coordinated with the Public Work Order documents.

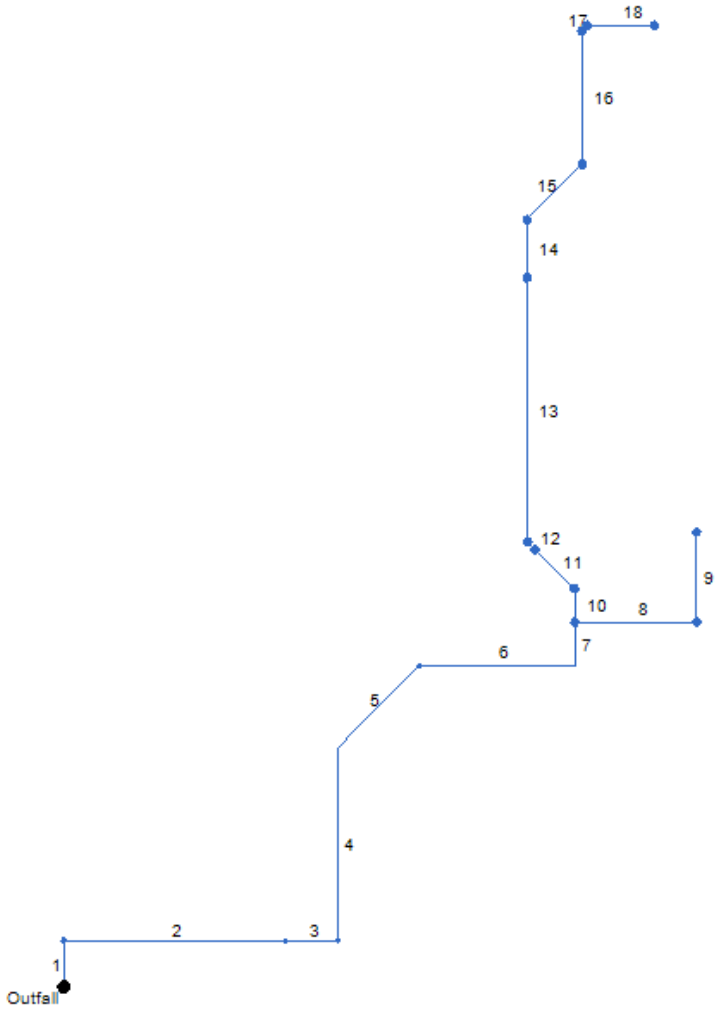
Storm Sewer Summary Report

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		25.90	24	Cir	23.080	5151.33	5151.78	1.948	5154.76*	5155.02*	1.06	5156.08	End	Manhole
2		25.90	24	Cir	110.200	5151.78	5154.03	2.042	5156.08*	5157.31*	0.16	5157.47	1	Manhole
3	(2)	24.90	24	Cir	26.100	5154.03	5154.70	2.569	5157.47*	5157.74*	0.98	5158.71	2	Manhole
4		15.90	24	Cir	95.600	5154.70	5155.66	1.004	5158.71*	5159.12*	0.30	5159.41	3	None
5		7.00	24	Cir	58.000	5155.66	5156.36	1.206	5159.41*	5159.46*	0.06	5159.52	4	Manhole
6	(2)	7.00	18	Cir	77.300	5156.36	5157.14	1.009	5159.52*	5159.81*	0.24	5160.06	5	None
7		7.00	18	Cir	21.250	5157.14	5157.35	0.988	5160.06*	5160.14*	0.24	5160.38	6	Manhole
8		1.30	8	Cir	60.626	5157.35	5158.88	2.523	5160.38*	5160.98*	0.22	5161.20	7	Manhole
9		0.50	8	Cir	44.751	5158.88	5160.00	2.503	5161.20*	5161.26*	0.03	5161.29	8	Manhole
10		5.70	18	Cir	16.750	5157.35	5157.51	0.953	5160.38*	5160.42*	0.12	5160.54	7	Manhole
11		5.70	18	Cir	27.754	5157.51	5157.77	0.938	5160.54*	5160.61*	0.02	5160.64	10	Manhole
12		5.70	12	Cir	5.039	5157.77	5157.82	0.988	5160.64*	5160.75*	0.61	5161.35	11	Manhole
13		5.70	12	Cir	131.502	5157.82	5159.07	0.951	5161.35*	5164.23*	0.12	5164.35	12	Manhole
14		4.40	12	Cir	28.700	5159.07	5159.36	1.011	5164.35*	5164.72*	0.37	5165.09	13	Manhole
15		3.10	12	Cir	39.068	5159.36	5159.73	0.947	5165.09*	5165.34*	0.18	5165.52	14	Manhole
16		3.10	12	Cir	66.250	5159.73	5160.36	0.951	5165.52*	5165.95*	0.18	5166.14	15	Manhole
17		1.80	12	Cir	3.802	5160.36	5160.40	1.053	5166.14*	5166.14*	0.06	5166.20	16	Manhole
18		1.30	12	Cir	33.250	5160.40	5160.72	0.963	5166.20*	5166.24*	0.04	5166.28	17	Manhole

Project File: SD South.stm | Number of lines: 18 | Run Date: 8/26/2016

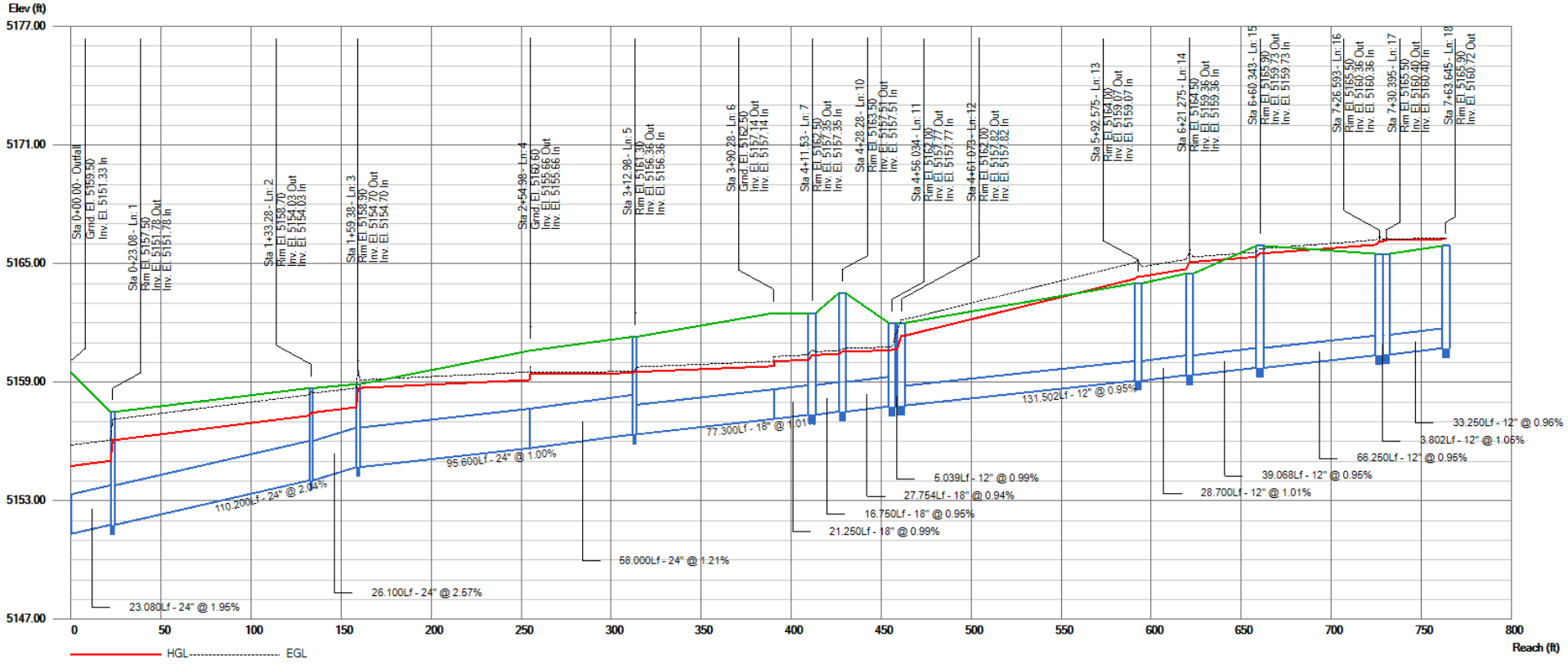
NOTES: Return period = 2 Yrs. ; *Surcharged (HGL above crown).

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



Project File: SD South.stm	Number of lines: 18	Date: 8/26/2016

Basin 4 Storm Drain Profile: (1-18)



APPENDIX A

Conference Recap to discuss the discharge rate(s) to San Mateo Blvd. in the fully developed condition.

Attendees:

Rita Harmon, PE ..... COA Hydrology

Genny Donart, PE, Bryan Bobrick ..... Isaacson & Arfman PA (engineer)

Brian Patterson..... Titan Development (owner)

See next two pages for copy of written discussion points and mark-up of drainage basin submittal used during this meeting.

CITY OF ALBUQUERQUE
PLANNING DEPARTMENT
DEVELOPMENT SERVICE / HYDROLOGY SECTION

DATE: 7-8-16
CONFERENCE RECAP

ZONE ATLAS PAGE NO: Broadstone North Point
DRAINAGE FILE: _____
ZONING: _____ & I-25 DMP.
DRB:
SUBJECT: _____
STREET ADDRESS (IF KNOWN): _____
SUBDIVISION NAME: _____

APPROVAL REQUESTED: Rita Harmon

ATTENDANCE: Genny Donart; Brian Bobrick; Brian Patterson

FINDINGS:

(1) Split Basin 2 so that half discharges to N. San Mateo (past hi. pnt)

(2) Basin 5 will not require first flush & should be discharged as far downstream on San Mateo (S. of High Pnt) as far possible.

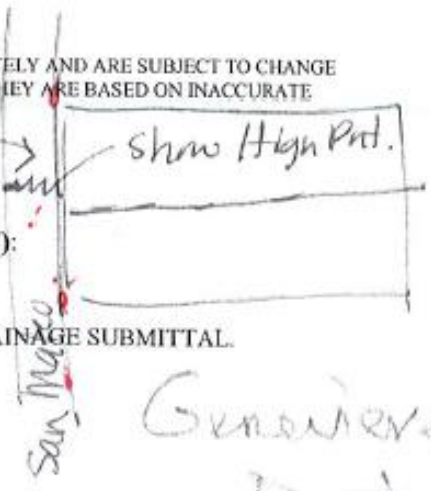
(3) Existing discharge of 30.3 cfs is being reduced. (so 1 dune dry does not qualify)

(4) Basin 2 may not be reqd to have first flush.

(5) Adjust DMP Basin Map as such:

THE UNDERSIGNED AGREES THAT THE ABOVE FINDINGS ARE SUMMARIZED ACCURATELY AND ARE SUBJECT TO CHANGE IF FURTHER INVESTIGATION REVEALS THAT THEY ARE NOT REASONABLE OR THAT THEY ARE BASED ON INACCURATE INFORMATION.

add note stating that up to 15 cfs may be allowed to discharge into San Mateo, but may be limited by the street capacity



SIGNED: Curtis A. Cherne
NAME (PRINT): Curtis A. Cherne

SIGNED:
NAME (PRINT):

NOTE PLEASE PROVIDE A COPY OF THIS RECAP WITH YOUR DRAINAGE SUBMITTAL.

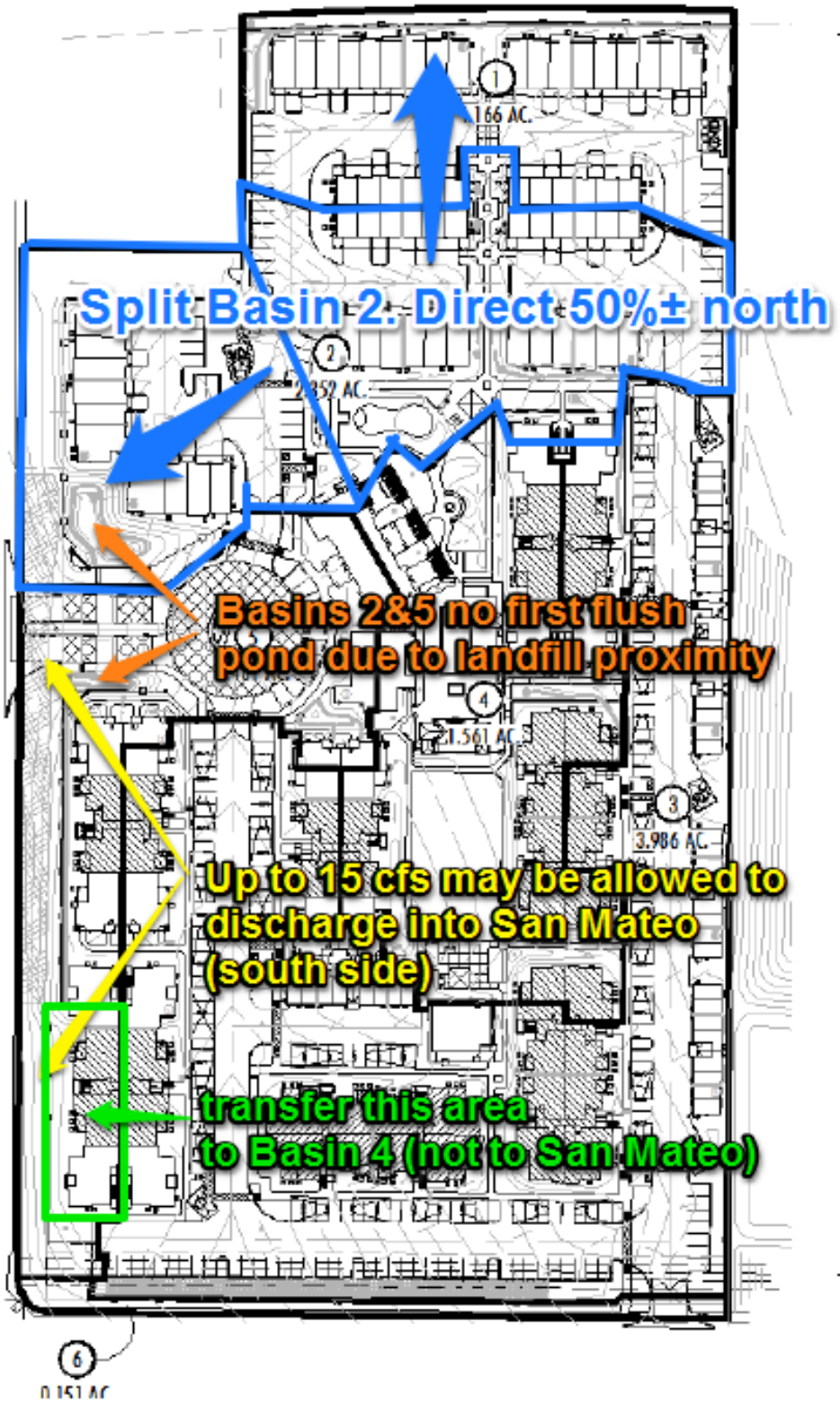
Rita Harmon

Genevieve

Excerpt from the previous submittal to Hydrology. Showing changes agreed upon during meeting with Rita Harmon.

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)

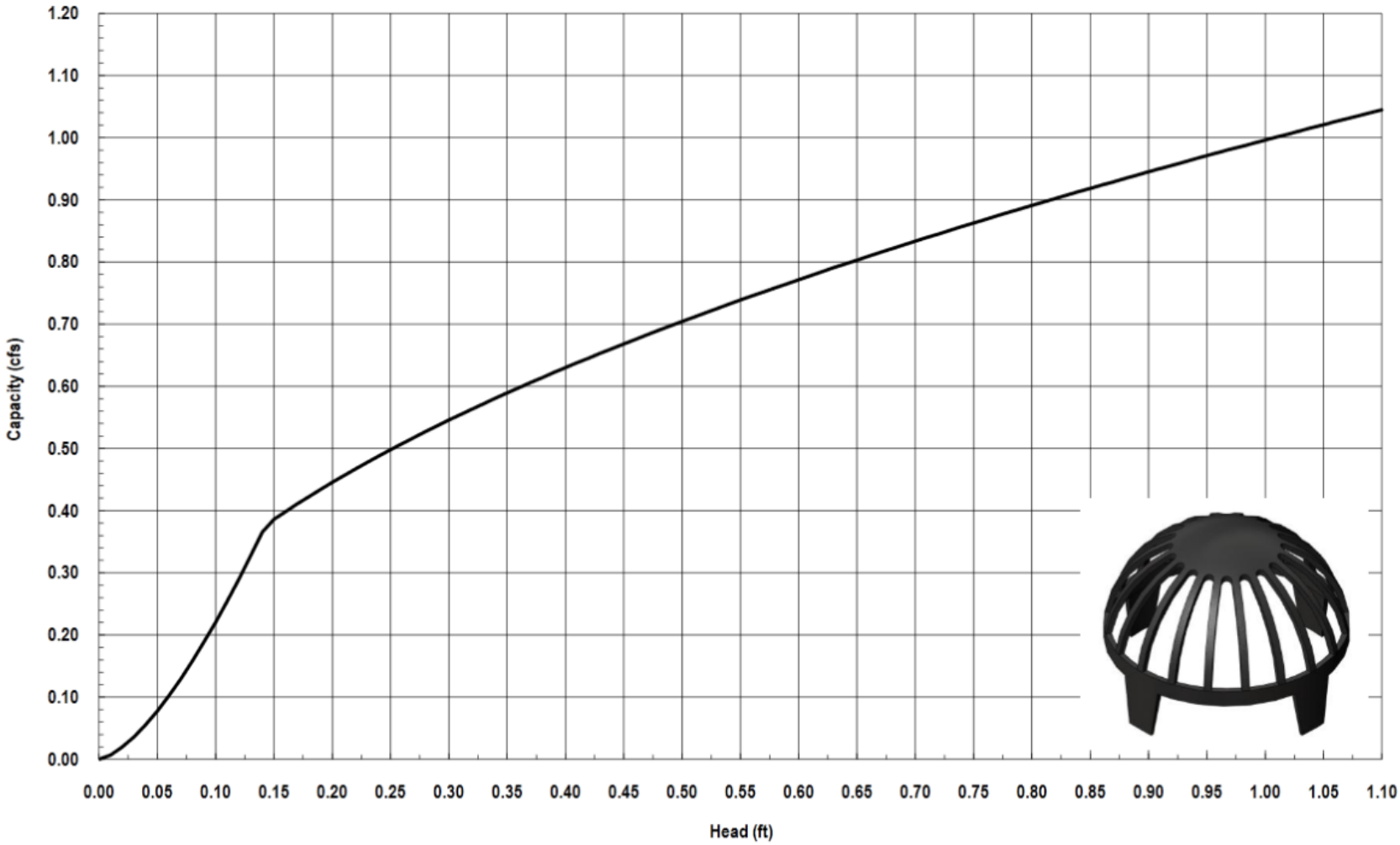
Basin 4:
7.0 cfs discharging via Storm Drain - to enter South La Cueva (northwest stub)

Basin 5:
6.9 cfs discharging to San Mateo Blvd.

Basin 6:
0.7 cfs discharging to Modesto Ave.

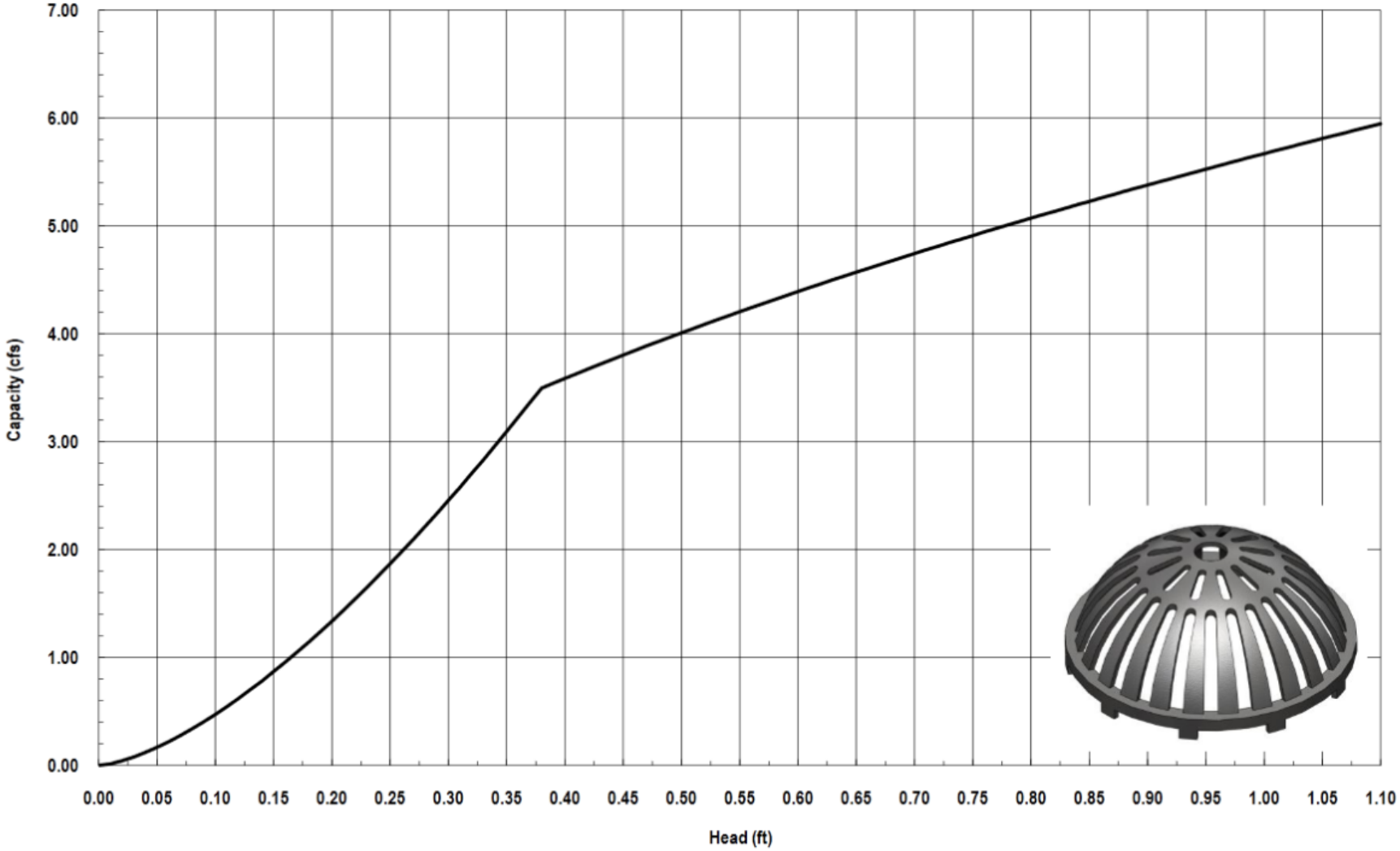
Total discharge to San Mateo Blvd. = Basins 1, 2 and 5 = 22.7 cfs

Nyloplast 8" Dome Grate Inlet Capacity Chart



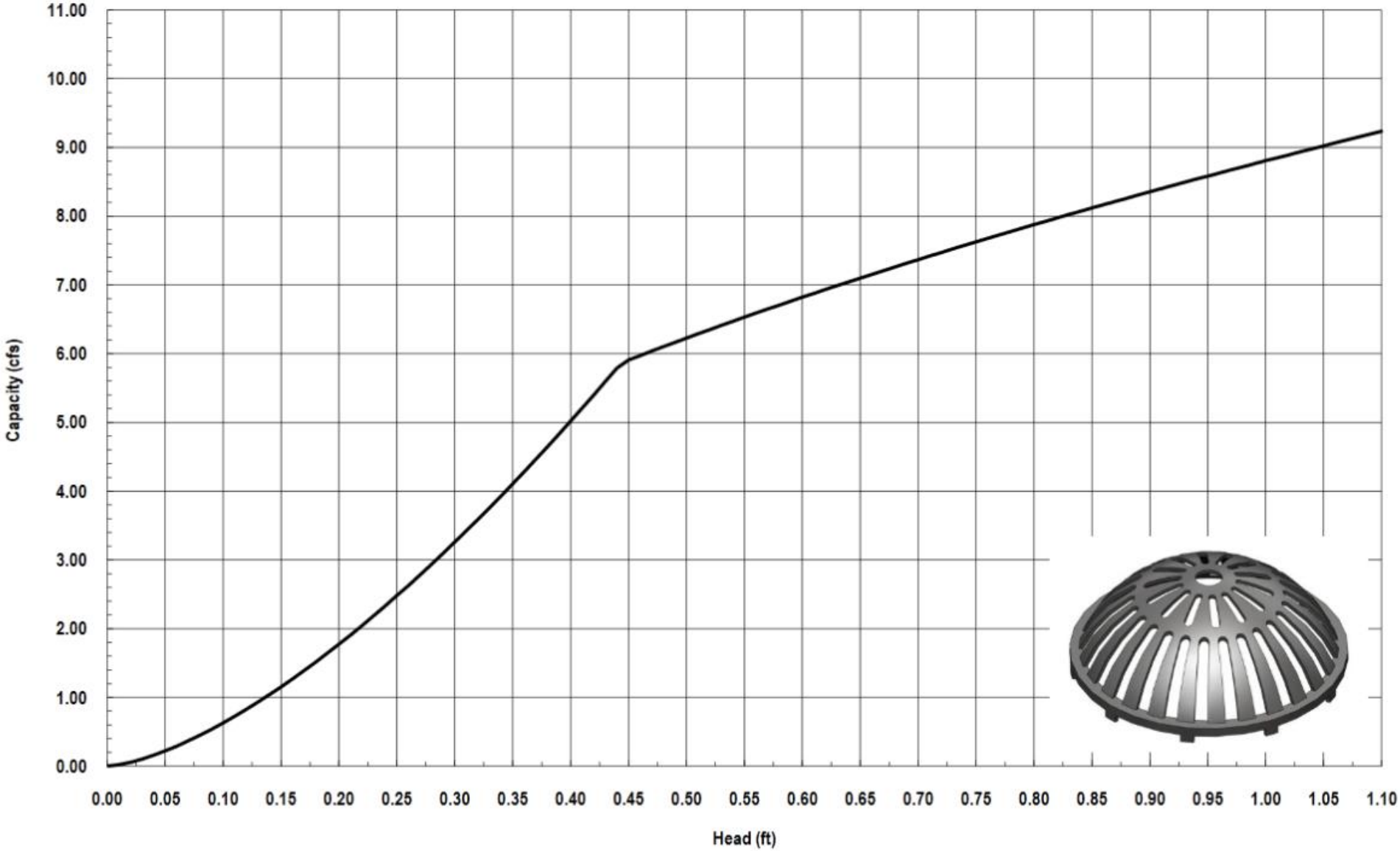
Nyloplast
3130 Verona Avenue • Buford, GA 30518
(866) 888-8479 / (770) 932-2443 • Fax: (770) 932-2490

Nyloplast 18" Dome Grate Inlet Capacity Chart

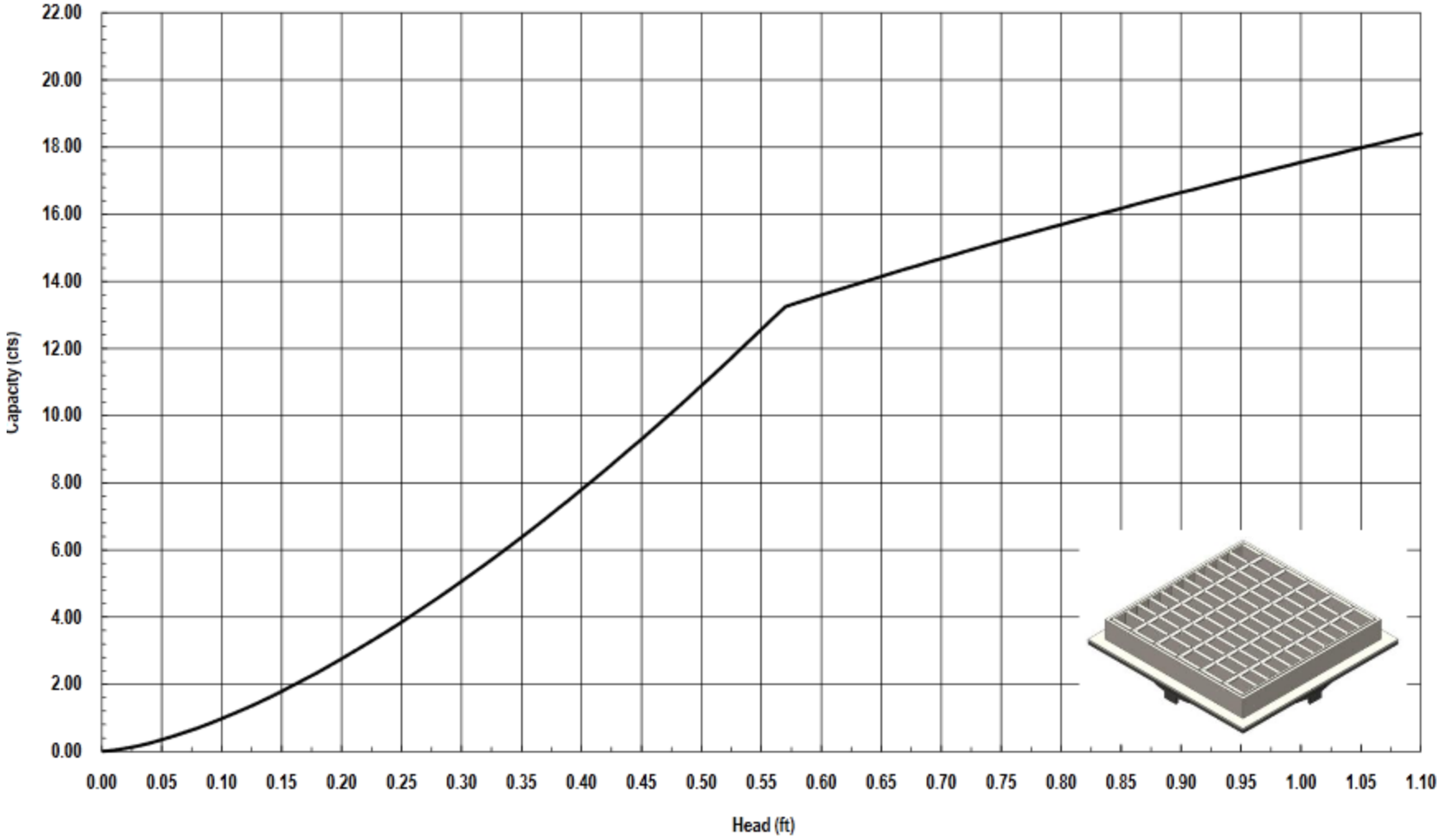


Nyloplast
3130 Verona Avenue • Buford, GA 30518
(866) 888-8479 / (770) 932-2443 • Fax: (770) 932-2490

Nyloplast 24" Dome Grate Inlet Capacity Chart



Nyloplast 2' x 2' Steel Bar / MAG Grate Inlet Capacity Chart



Nyloplast
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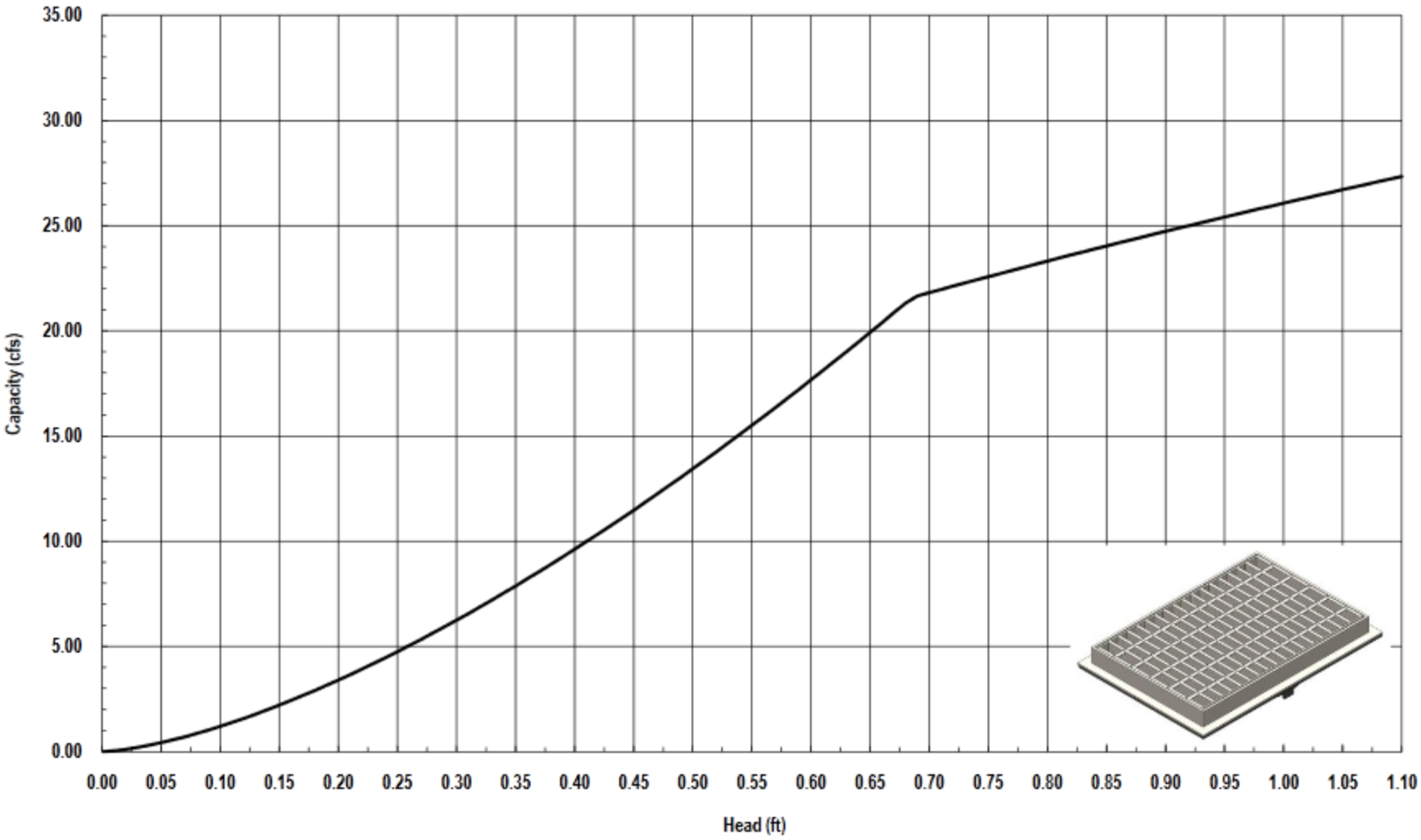
(866) 888-8479 / (770) 932-2443 • Fax: (770) 932-2490

Nyloplast 2' x 3' Steel Bar / MAG Grate Inlet Capacity Chart



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APPENDIX B

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").

AMENDED DRAINAGE MASTER PLAN

FOR

NORTH I-25 CORPORATE CENTER
(aka Northpoint 25)

ALBUQUERQUE, NEW MEXICO

JULY 2016

PREPARED FOR:
NORTH I25, LLC
c/o TITAN DEVELOPMENT

BY

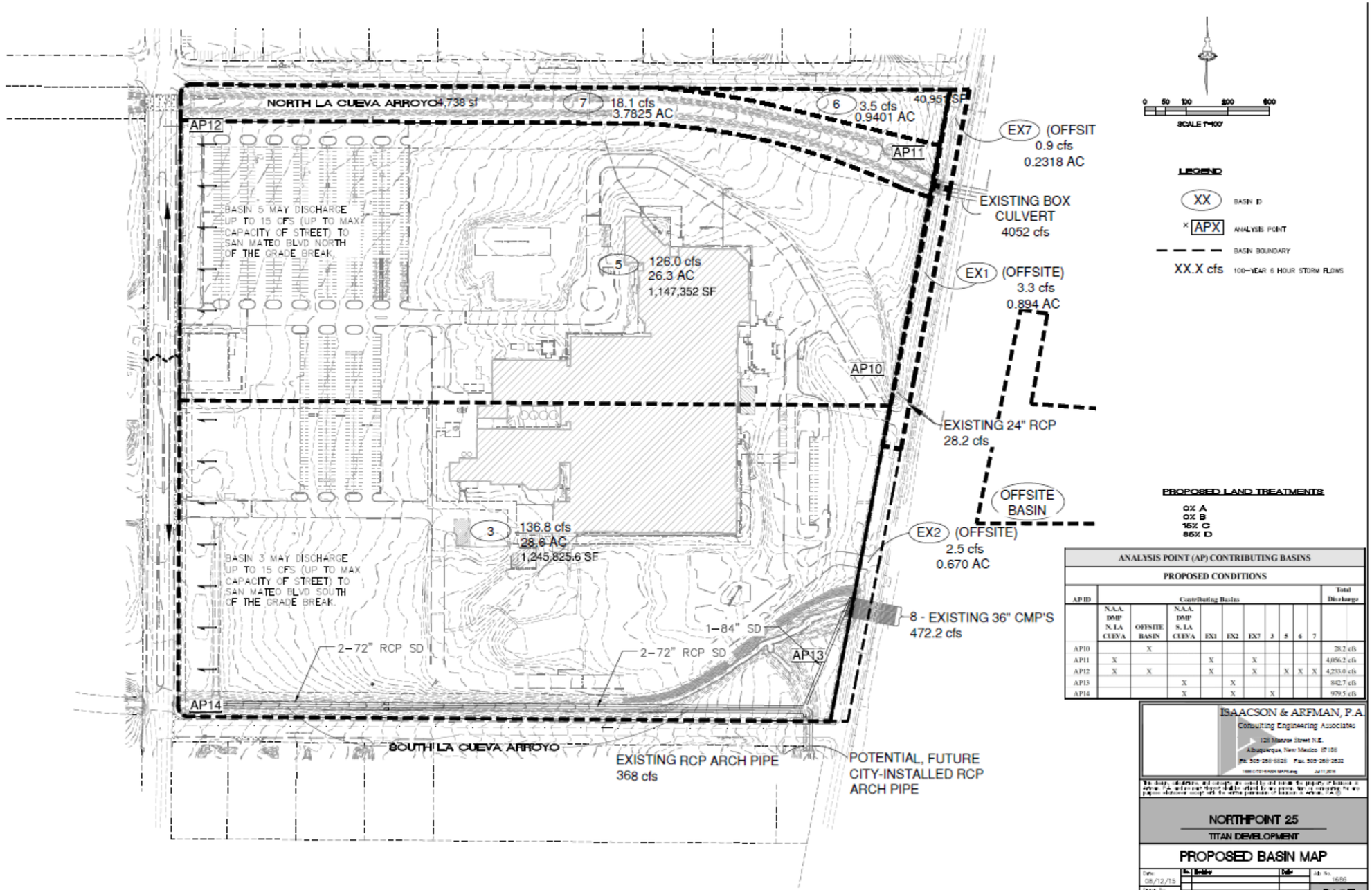
Genevieve L. Donart, PE **Date**

ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates

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

I&A Project No. 1686
M:\PROJECT DOCUMENTS\1600-1699\1686\REPORTS & EXHIBITS\

EXCERPT FROM DMP: 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	5	6	7	
AP10		X									28.2 cfs
AP11	X			X		X					4,056.2 cfs
AP12	X	X		X		X		X	X	X	4,233.0 cfs
AP13			X		X						842.7 cfs
AP14			X		X		X				979.5 cfs

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Consulting Engineering Associates
128 Monroe Street N.E.
Albuquerque, New Mexico 87108
Ph: 505-268-8828 Fax: 505-268-2632

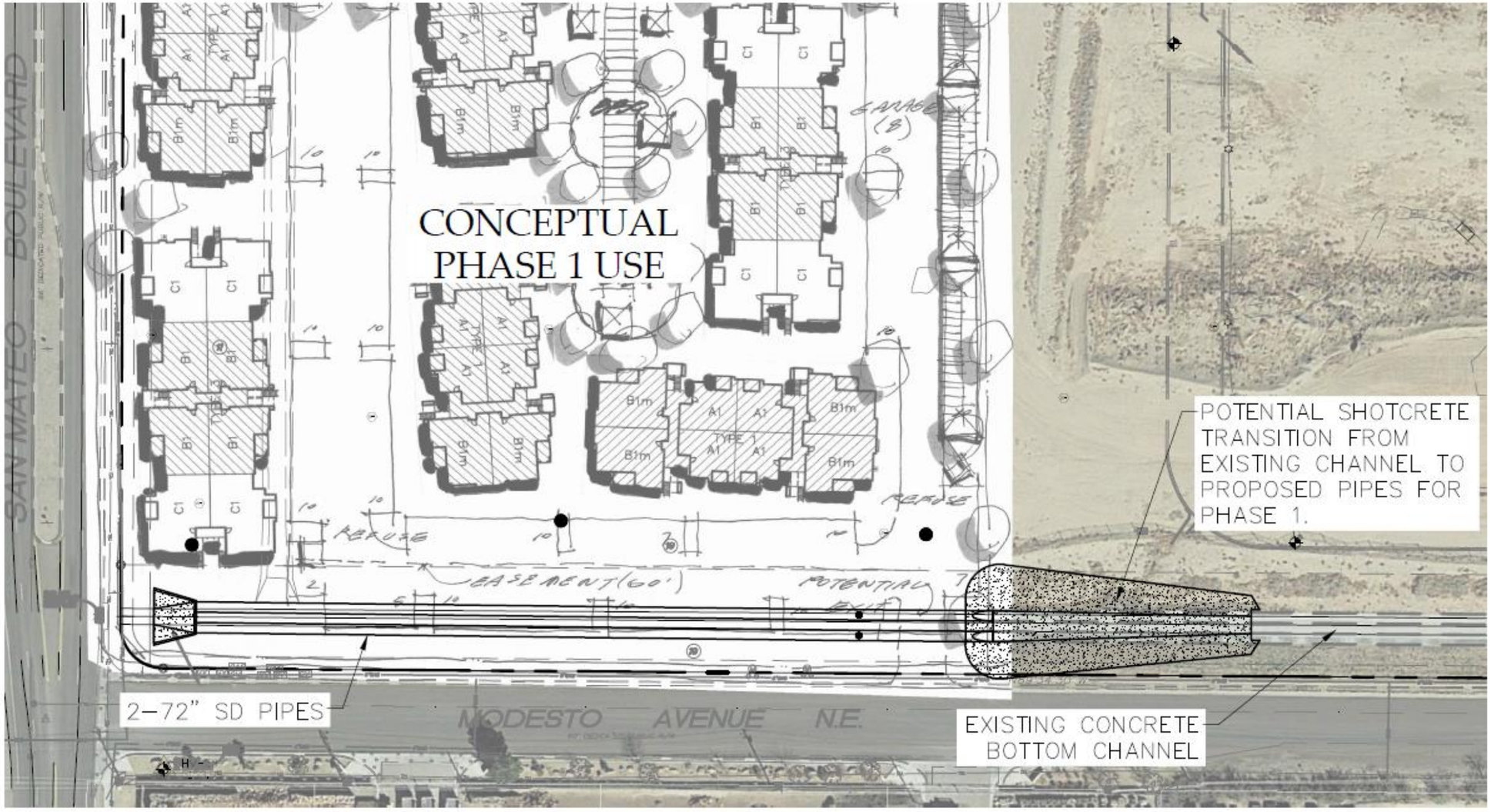
NORTHPOINT 25

TITAN DEVELOPMENT

PROPOSED BASIN MAP

Date: 05/12/15
Drawn By: ELD
Chkd By: ELD
No. Date
Job No. 1686
PAGE
SH. OF

EXCERPT FROM DMP: PROPOSED CONDITIONS
SOUTH LA CUEVA IMPROVMENTS - CONCEPTUAL FIRST PHASE LAYOUT



SOUTH LA CUEVA ARROYO
CONCEPTUAL FIRST PHASE

1"=60'

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Albuquerque, New Mexico 87108
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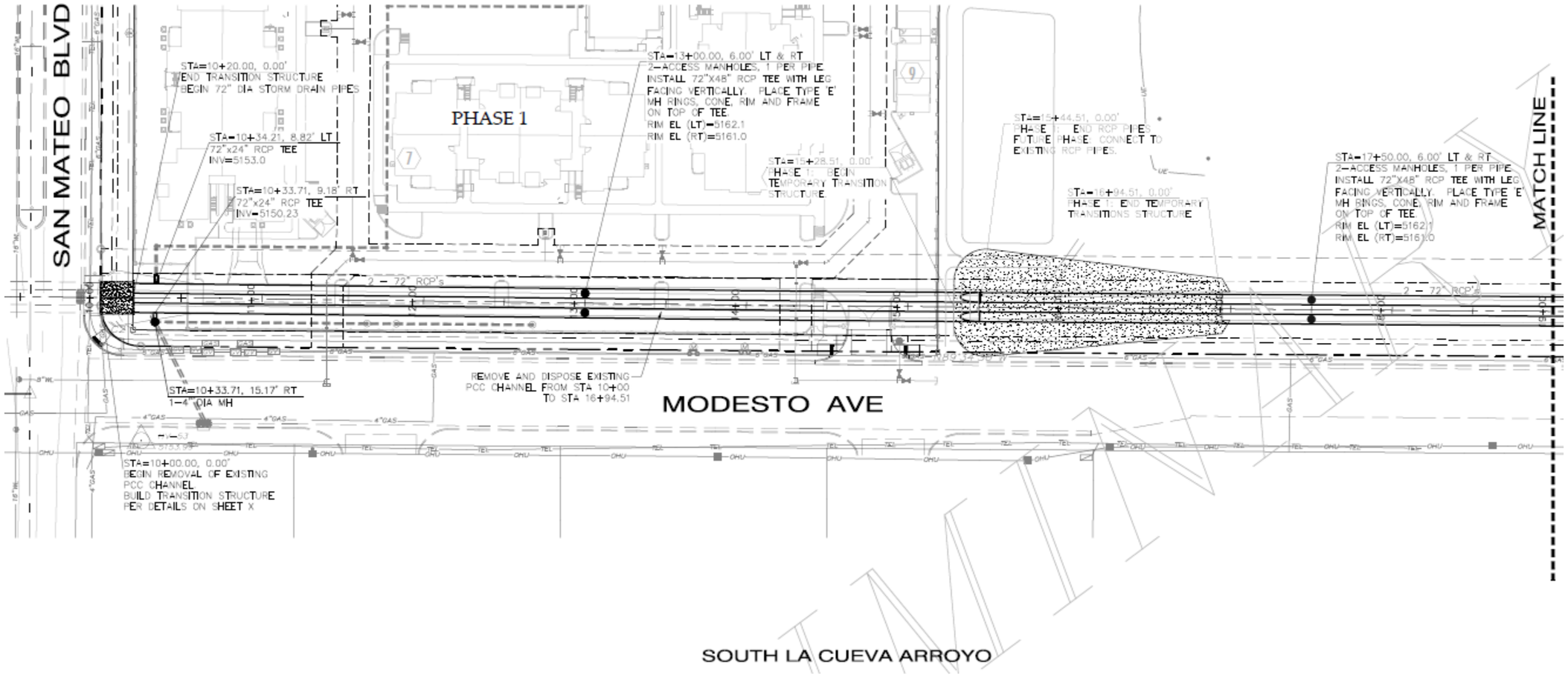
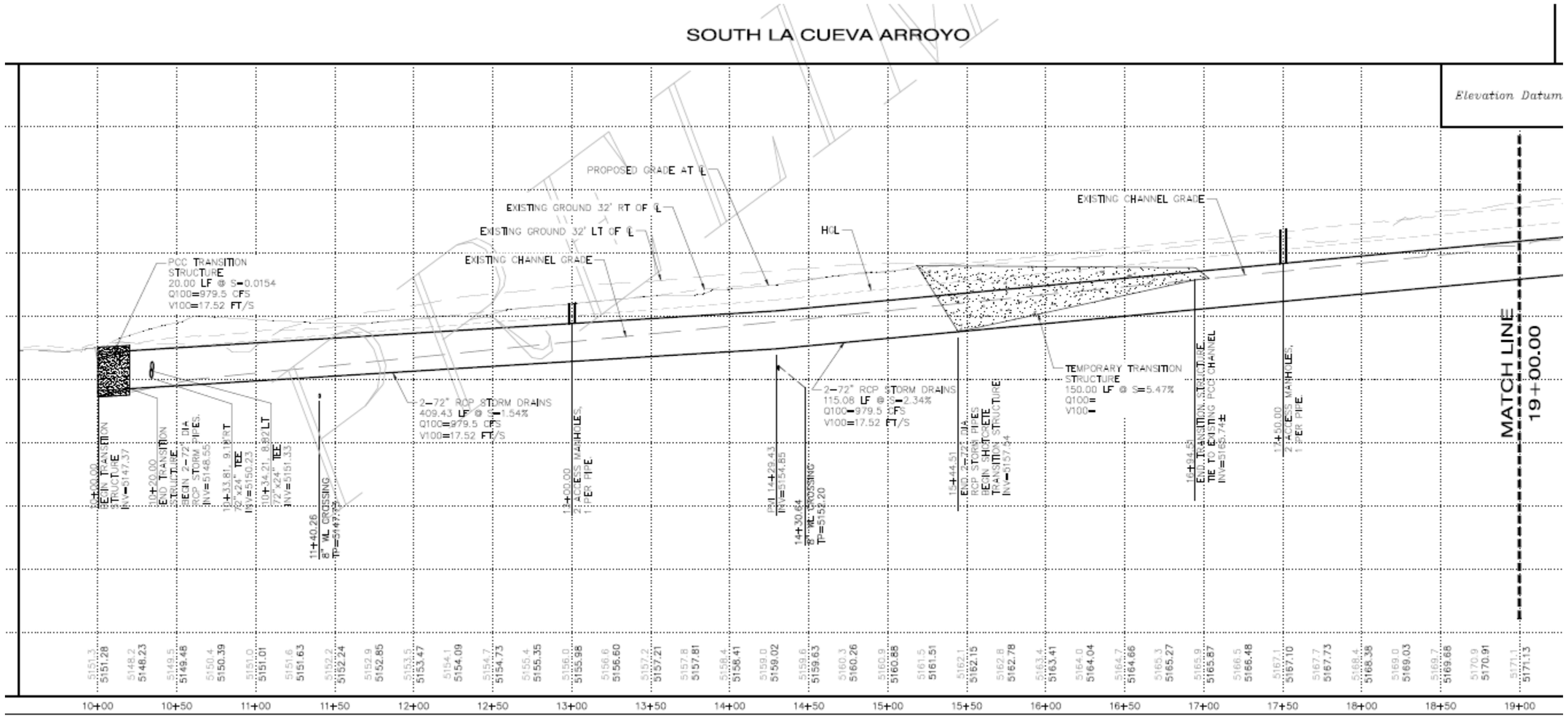
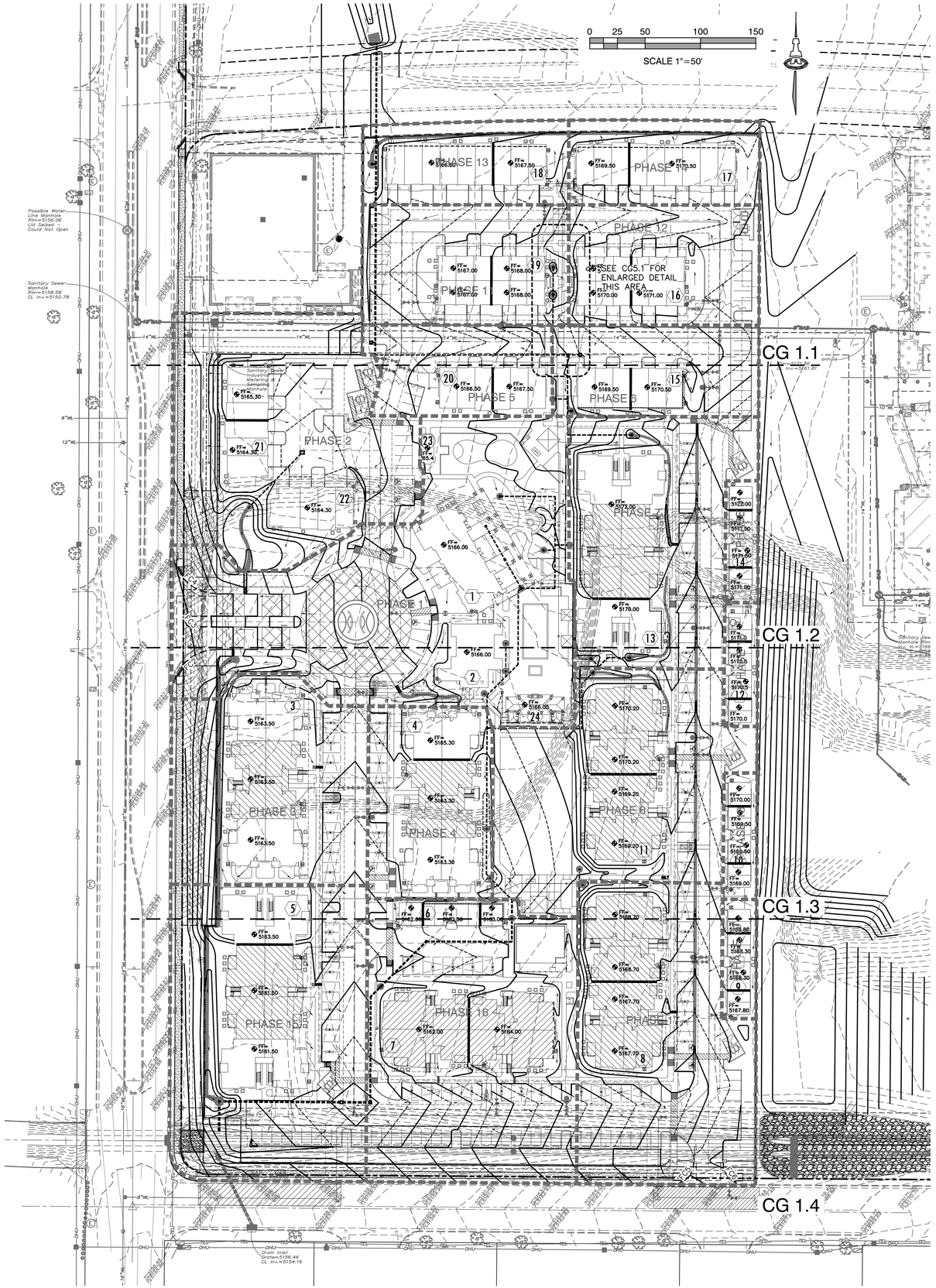
EXCERPT FROM REPORT: APPENDIX B – PROPOSED CONDITIONS

SOUTH LA CUEVA IMPROVMENTS - CONCEPTUAL FIRST PHASE PLAN

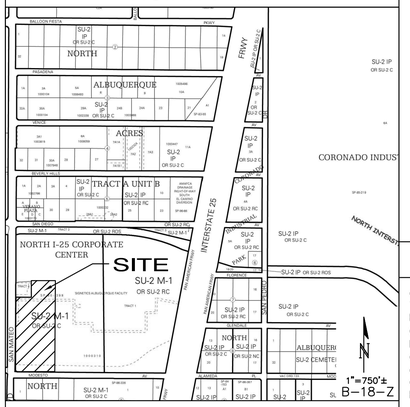


EXCERPT FROM DMP: PROPOSED CONDITIONS
SOUTH LA CUEVA IMPROVMENTS - CONCEPTUAL FIRST PHASE PROFILE





VICINITY MAP



LANDFILL NOTES

THE SUBJECT PROPERTY IS LOCATED ON A FORMER LANDFILL. EXCAVATION AND OFF-SITE DISPOSAL OF THE ON-SITE LANDFILL MATERIAL WAS COMPLETED IN 2009. THIS EXCAVATION WAS LIMITED ALONG THE WESTERN BORDER (EXISTING SAN MATEO BLVD.) PRIOR TO OR IN CONJUNCTION WITH THE PROPOSED CONSTRUCTION. PRECAUTIONARY MEASURES PER THE 'LANDFILL GAS ASSESSMENT' FOR BROADSTONE NORTHPOINT PREPARED BY TERRACON CONSULTANTS, INC. DATED JULY 14, 2016 WILL BE COORDINATED WITH NMED AND CONSTRUCTED (PLANS BY OTHERS).

IF DURING GRADING AND EXCAVATION, REMNANTS OF LANDFILL DEBRIS ARE ENCOUNTERED, IT WILL BE EXCAVATED WITHIN TRACT 1-B. ANY LANDFILL DEBRIS ENCOUNTERED DURING GRADING AND EXCAVATION ON TRACT 1-C WILL BE HANDLED VIA THE LANDFILL GAS MIGRATION SYSTEM.

FIRST FLUSH

TYPICALLY, STORMWATER CONTROL MEASURES ARE REQUIRED TO PROVIDE MANAGEMENT OF 'FIRST FLUSH' WHICH DISCHARGES DIRECTLY TO A PUBLIC STORM DRAINAGE SYSTEM.

PER AN INTEROFFICE MEMORANDUM FROM COA ENVIRONMENTAL HEALTH DEPARTMENT DATED AUGUST 9, 2016:

THIS PROJECT AND OTHER PROJECTS LOCATED ON THE FORMER CORONADO LANDFILL SHALL NOT INCLUDE FIRST FLUSH PONDS (THIS INCLUDES PROPERTIES BOUNDED BY VENICE AVE. ON THE NORTH, MODESTO AVE. ON THE SOUTH, INTERSTATE 25 ON THE EAST AND SAN MATEO BLVD. ON THEW WEST.)

HYDROLDOGY UNDERSTANDS THIS REQUIREMENT TO MEAN THAT NO DEFINED RETENTION PONDING AREAS (FIRST FLUSH, EXTRA DEPTH WATER HARVESTING WITHIN LANDSCAPING) SHOULD OCCUR ON THE DESIGNATED PROPERTIES.

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
	GRADE BREAK / SLOPE TRANSITION
	DEEPENED/RETAINING BUILDING STEMWALL
15	BUILDING NUMBER
	FINISH FLOOR GRADE TRANSITION

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.

BROADSTONE NORTHPOINT

NWC SAN MATEO AND MODESTO NE
Albuquerque, New Mexico

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WorldHQ@ORBArch.com

FRED C. ARFMAN NEW MEXICO 7322 LICENSED PROFESSIONAL ENGINEER 08-24-16

TITAN DEVELOPMENT
ALLIANCE RESIDENTIAL COMPANY

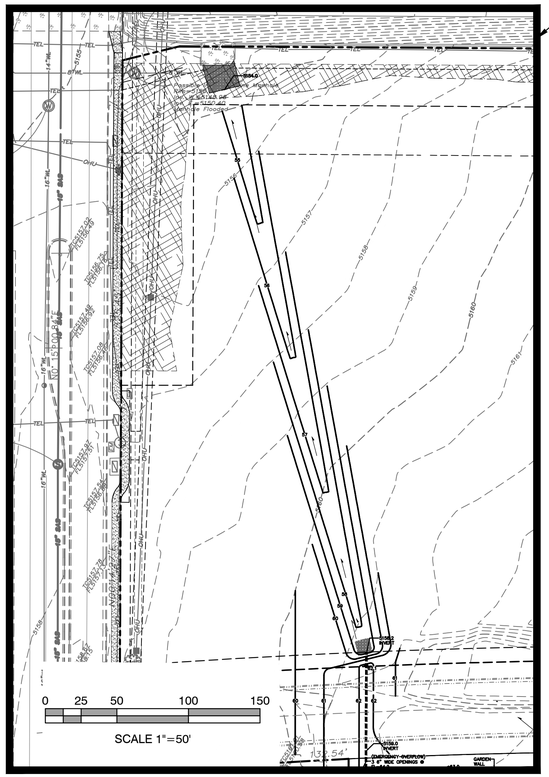
REVISIONS

SECOND CITY SUBMITTAL

DATE: AUGUST 24, 2016 ORB # 15-212

CG1.0

OVERALL GRADING AND DRAINAGE PLAN



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 AND CG5.3 FOR SIZES / SLOPES / INLET INFORMATION / MATERIALS.
15. NOT USED.
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. NOT USED
25. CONSTRUCT ESTATE CURB THIS AREA TO PASS SHEETFLOW TO LANDSCAPING AND STORM DRAIN INLETS. 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.
28. CONSTRUCT SITE GARDEN WALL TO ACHIEVE GRADE DIFFERENCE THIS AREA (MAX. 1.5' RETAINING). SEE ARCHITECTURAL PLAN FOR EXTENTS AND DETAILS.

LEGEND

79	PROPOSED CONTOUR – 1' INCREMENT
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FF= 5171.00	FINISH FLOOR ELEVATION
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BROADSTONE NORTHPOINT

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FRED C. ARFMAN NEW MEXICO 7322 LICENSED PROFESSIONAL ENGINEER 08-24-16

TITAN DEVELOPMENT

ALLIANCE RESIDENTIAL COMPANY

REVISIONS

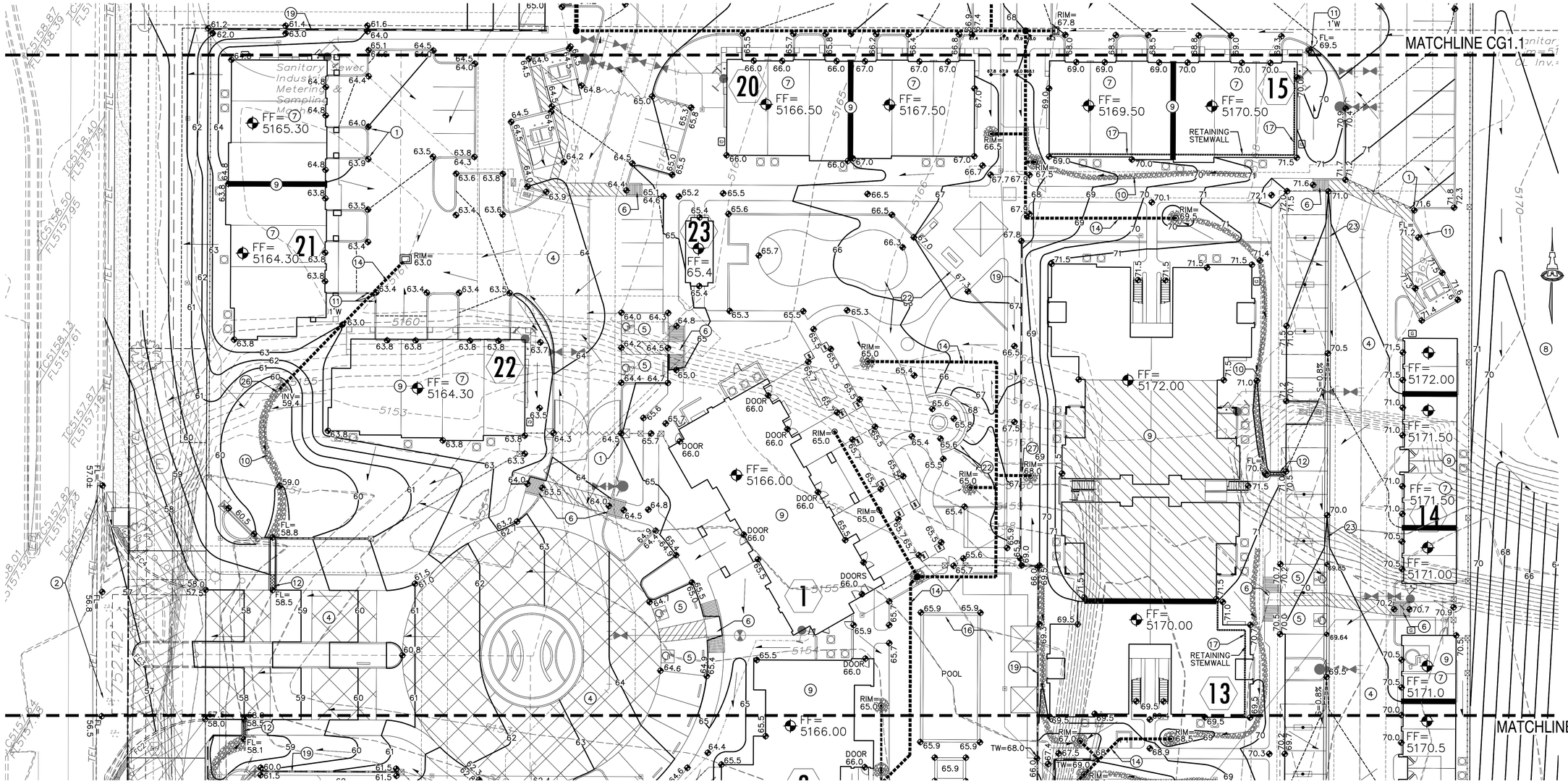
SECOND CITY SUBMITTAL

DATE: AUGUST 24, 2016 ORB # 15-212

CG1.1

GRADING AND DRAINAGE PLAN - 1 OF 4

FILE:M:\PROJECTS\2100-2199\2129\DWG\2129 BUILDING PERMIT\2129 CG-10X.dwg USER:Bryon DATE:Aug. 25 2016 TIME: 01:54 pm



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LEGEND

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- 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
- GRADE BREAK / SLOPE TRANSITION
- DEEPENED/RETAINING BUILDING STEMWALL
- 15 — BUILDING NUMBER
- FINISH FLOOR GRADE TRANSITION

BROADSTONE NORTHPOINT

NWC SAN MATEO AND MODESTO NE
Albuquerque, New Mexico

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FRED C. ARFMAN NEW MEXICO 7322 LICENSED PROFESSIONAL ENGINEER 08-24-16

TITAN DEVELOPMENT
ALLIANCE RESIDENTIAL COMPANY

REVISIONS

SECOND CITY SUBMITTAL

DATE: AUGUST 24, 2016 ORB # 15-212

CG1.2

GRADING AND DRAINAGE PLAN - 2 OF 4

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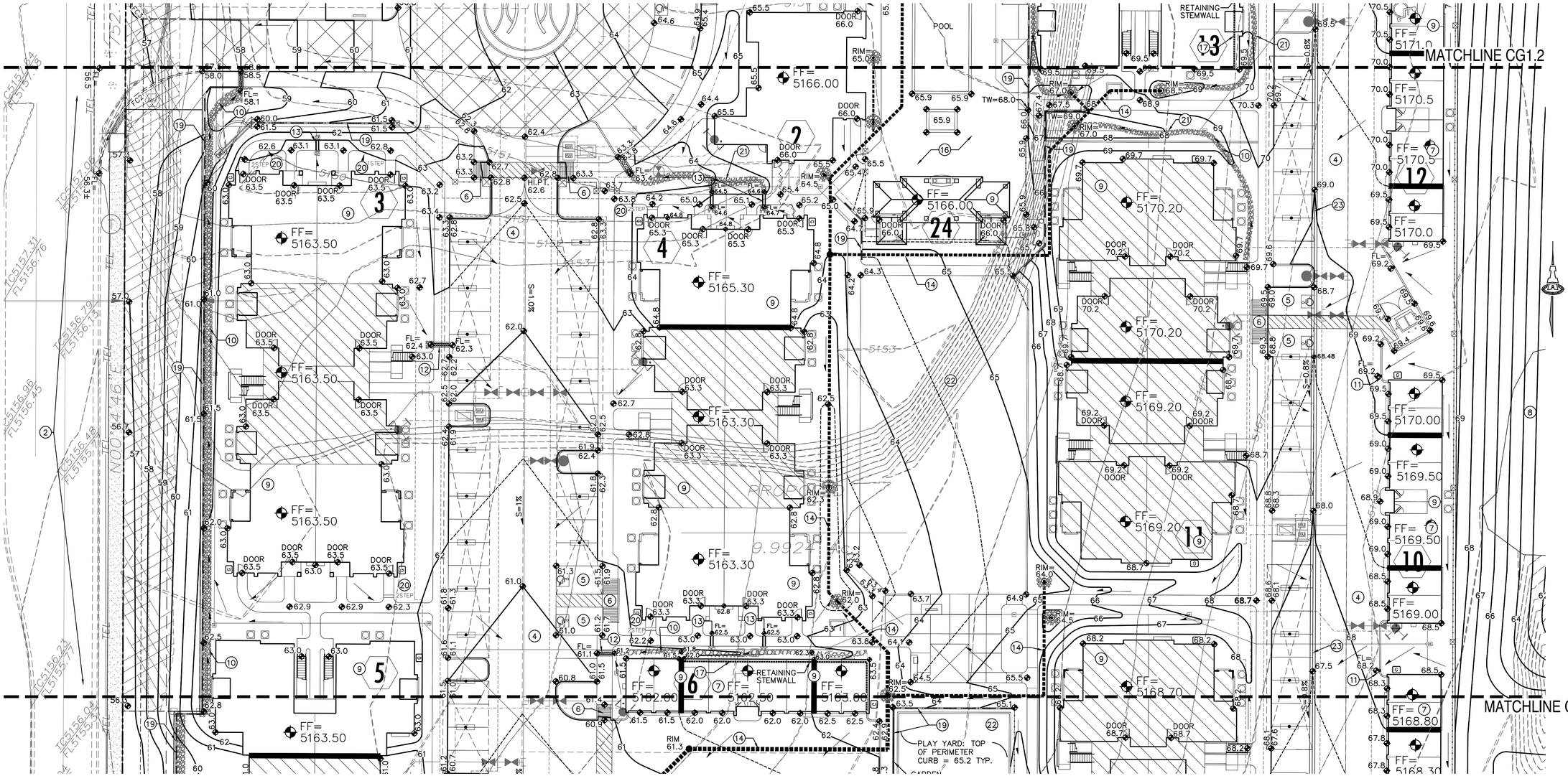

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8. OFF-SITE GRADING THIS AREA TO PROVIDE FOR TEMPORARY DESILTATION PONDS AND BERMS AS REQUIRED TO ROUTE OFF-SITE FLOW AROUND DEVELOPMENT.
9. BUILDING ROOF DISCHARGE TO BE RELEASED TO ALL SIDES. PROVIDE CONCRETE SPLASH BLOCK (O.E) AT DOWNSPOUT LOCATIONS (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 AND CG5.3 FOR SIZES / SLOPES / INLET INFORMATION / MATERIALS.
15. NOT USED.
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. NOT USED
25. CONSTRUCT ESTATE CURB THIS AREA TO PASS SHEETFLOW TO LANDSCAPING AND STORM DRAIN INLETS. 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.
28. CONSTRUCT SITE GARDEN WALL TO ACHIEVE GRADE DIFFERENCE THIS AREA (MAX. 1.5' RETAINING). SEE ARCHITECTURAL PLAN FOR EXTENTS AND DETAILS.

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
	GRADE BREAK / SLOPE TRANSITION
	DEEPENED/RETAINING BUILDING STEMWALL
15	BUILDING NUMBER
	FINISH FLOOR GRADE TRANSITION

BROADSTONE NORTHPOINT
NWC SAN MATEO AND MODESTO NE
Albuquerque, New Mexico

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FRED C. ARFMAN NEW MEXICO 7322 LICENSED PROFESSIONAL ENGINEER 08/24/16

TITAN DEVELOPMENT
ALLIANCE RESIDENTIAL COMPANY

REVISIONS

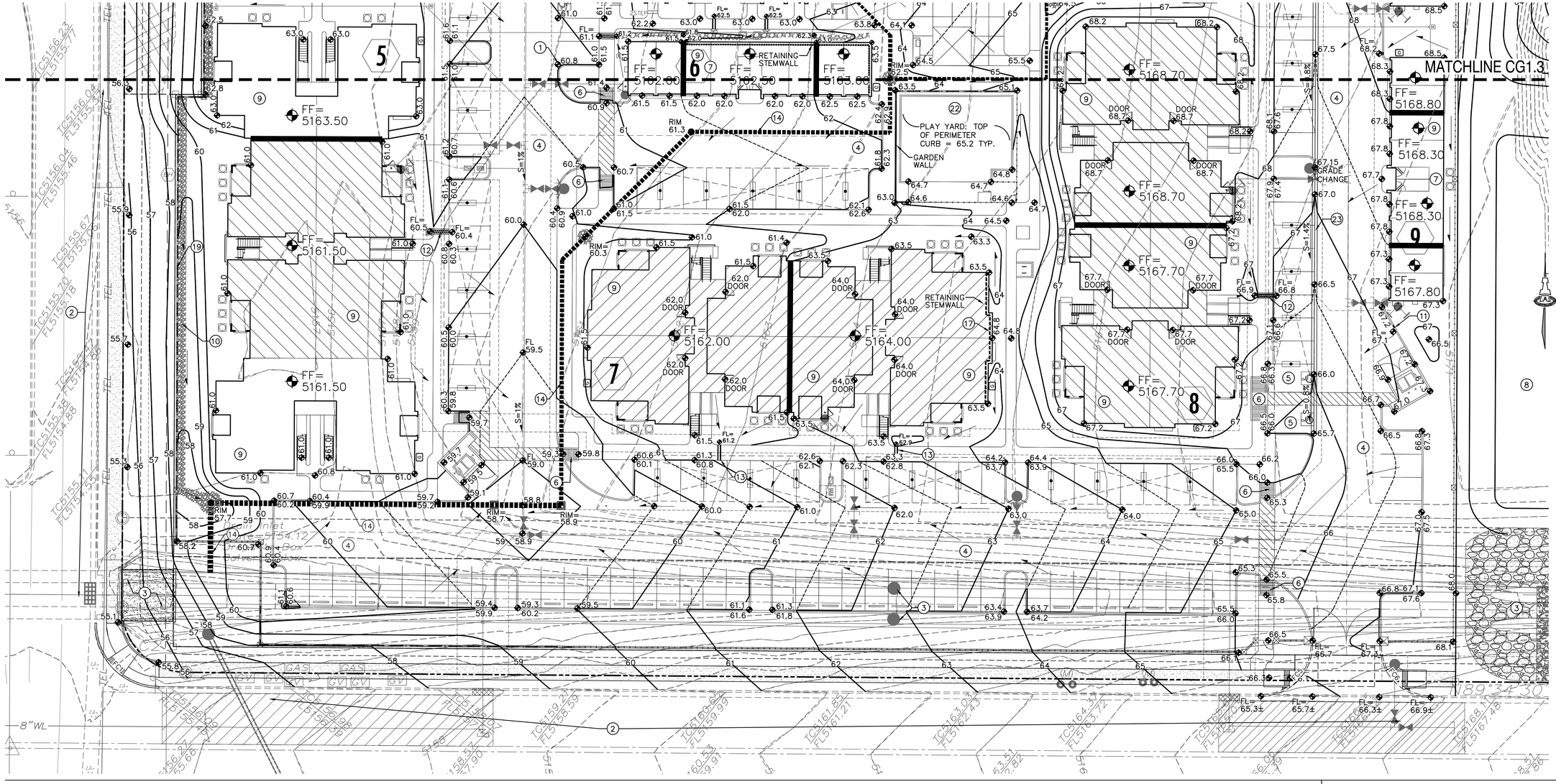
SECOND CITY SUBMITTAL

DATE: AUGUST 24, 2016 ORB # 15-212

CG1.3

GRADING AND DRAINAGE PLAN - 3 OF 4

FILE:M:\PROJECTS\2100-2199\2129\DWG\2129 BUILDING PERMIT\2129 CG-10X.dwg USER:Bryan DATE:Aug. 25 2016 TIME: 01:55 pm



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).
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14. CONSTRUCT PRIVATE STORM DRAIN SYSTEM. SEE SHEET CG5.2 AND CG5.3 FOR SIZES / SLOPES / INLET INFORMATION / MATERIALS.
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18. CONSTRUCT DEEPENED STEMWALL THIS AREA TO ACHIEVE EXTERIOR GRADES SHOWN. SEE ARCHITECTURAL.
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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. NOT USED
25. CONSTRUCT ESTATE CURB THIS AREA TO PASS SHEETFLOW TO LANDSCAPING AND STORM DRAIN INLETS. 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.
28. CONSTRUCT SITE GARDEN WALL TO ACHIEVE GRADE DIFFERENCE THIS AREA (MAX. 1.5' RETAINING). SEE ARCHITECTURAL PLAN FOR EXTENTS AND DETAILS.

LEGEND

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	RETAINING WALL
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CG1.4

GRADING AND DRAINAGE PLAN - 4 OF 4

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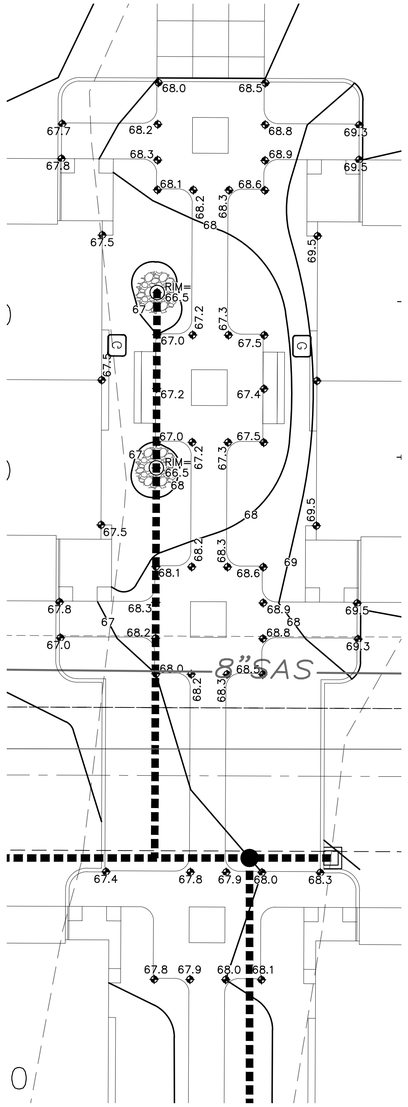


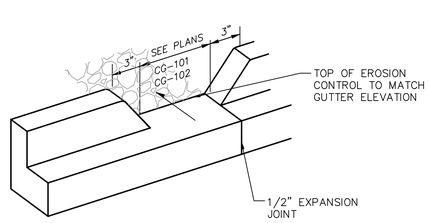
ENLARGED GRADING DETAIL - SEE CG1.1

SCALE: 1"=10'

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

SEE SHEET CG5.1 FOR LOCATION

SCALE: N.T.S.

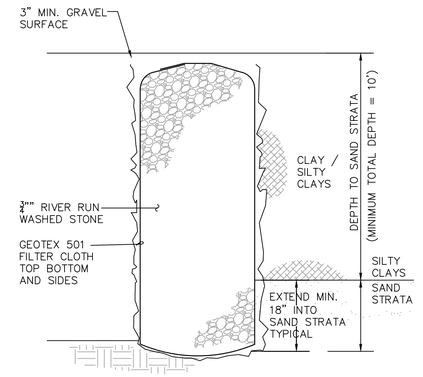


GENERAL NOTES

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

CURB OPENING

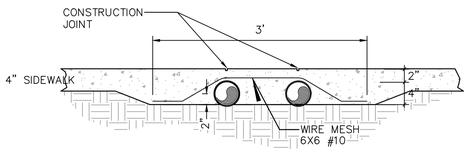
SCALE: N.T.S.

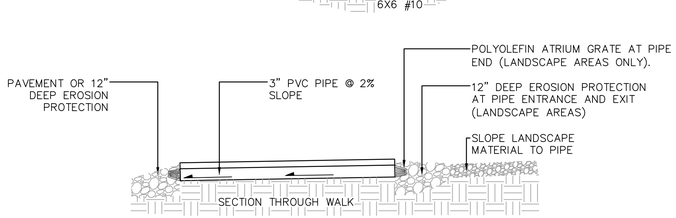


PERCOLATION TRENCH

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

SCALE: N.T.S.



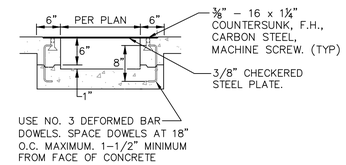


PIPES THROUGH WALK

SCALE: N.T.S.

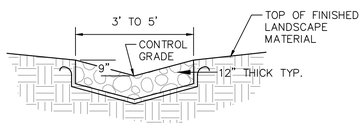
WELD ⅛" THICK, ⅝" MIN. DIAMETER OVER ALL SCREWS. COMPLETELY COVER SCREW HEADS. GRIND EDGES SMOOTH.

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

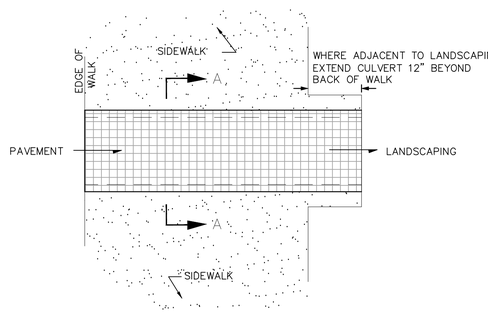
CONSTRUCT ALL SWALES AND FRACTURED FACE ROCK EROSION PROTECTION BELOW ADJACENT GRADE TO ENSURE RUNOFF CAN BE CAPTURED AND CONVEYED PROPERLY



- 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.

BROADSTONE NORTHPOINT

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DATE: AUGUST 24, 2016 ORB # 15-212

CG5.1

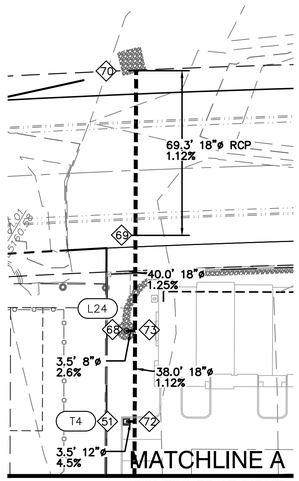
GRADING AND DRAINAGE DETAILS

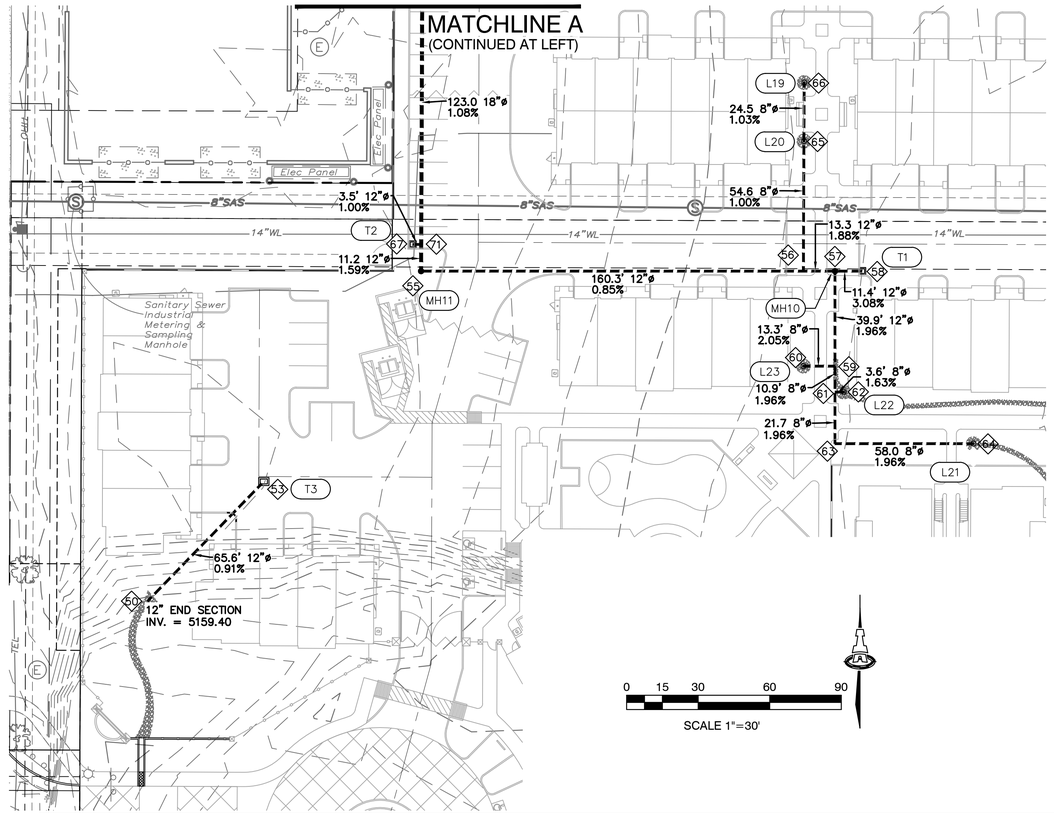
FILE:M:\PROJECTS\2100-2199\2129\DWG\2129 BUILDING PERMIT\2129 CG-50X.dwg USER:Bryan DATE:Aug, 25 2016 TIME: 01:55 pm

NORTH STORM DRAIN LAYOUT TABLE

Point	X	Y	INVERT	LABEL	DESCRIPTION
50	1540512.755	1525330.347	5159.40		12" END SECTION
51	1540624.396	1525602.969	5160.00	T4	18" NB, 24"X36" TRF
52	NOT USED				
53	1540558.446	1525377.415	5160.00	T3	18" NB, 24"X36" TRF
54	NOT USED				
55	1540627.426	1525468.759	5161.34	MH11	18" NB, SOLID
56	1540787.6923	1525468.7592	5162.70		12" X 8" TEE
57	1540800.9447	1525468.7592	5162.95	MH10	18" NB, SOLID
58	1540812.3306	1525468.7592	5163.30	T1	18" NB, 24"X24" TRF
59	1540800.9447	1525428.9301	5163.73		12"X8" TEE, 12"X8" ADPT
60	1540787.6923	1525428.9301	5164.00	L23	8" ID, DOME
61	1540800.9447	1525418.0732	5163.94		8" TEE
62	1540804.5504	1525418.0732	5164.00	L22	8" ID, DOME
63	1540800.9447	1525396.4301	5164.36		8" 90° BEND
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	1540623.878	1525479.970	5161.20	T2	18" NB, 24"X36" TRF
68	1540624.561	1525640.970	5159.50	L24	8" ID, DOME
69	1540628.318	1525681.014	5159.96		TRANSITION TO RCP
70	1540628.609	1525750.259	5158.18		18" RCP END SECTION
71	1540627.473	1525479.954	5161.16		18"X12" TEE
72	1540627.990	1525602.953	5159.84		18"X12" TEE
73	1540628.155	1525640.955	5159.50		18"X8" TEE

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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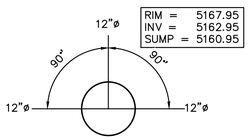
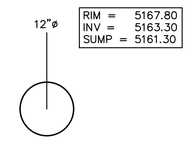
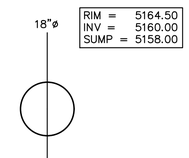


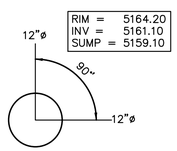
MH10
18"ø NB, SOLID



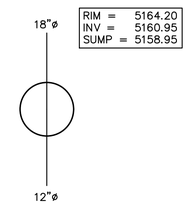
T1
18"ø NB, 2'X2' ROAD
AND HIGHWAY GRATE



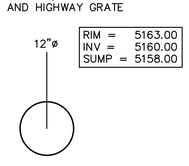
T4
18"ø NB, 2'X3' ROAD
AND HIGHWAY GRATE



MH11
18"ø NB, SOLID



T2
18"ø NB, 2'X2' ROAD
AND HIGHWAY GRATE



T3
18"ø NB, 2'X3' ROAD
AND HIGHWAY GRATE

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

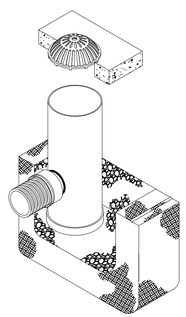
PRIOR TO RECEIVING ENGINEER'S CERTIFICATION FOR COMPLETION OF A PHASE, ALL STORM DRAIN IMPROVEMENTS IMPACTING THAT PHASE MUST BE CONSTRUCTED AND OPERATIONAL TO THE OUTLET.

STORM DRAIN LEGEND AND NOTES

FOR USE WITH SHEETS CG5.2 AND CG5.3

MH# NYLOPLAST MANHOLE INLET

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



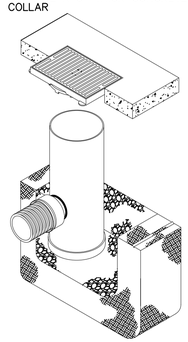
L# LANDSCAPE STORM DRAIN INLET

ALL LANDSCAPE AREA INLETS 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# 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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DATE: AUGUST 24, 2016 ORB # 15-212

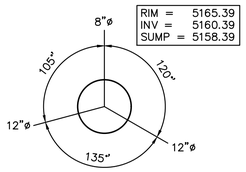
CG5.2

STORM DRAIN DESIGN AND DETAILS 1 OF 2

FILE:M:\PROJECTS\2100-2199\2129\DWG\2129 BUILDING PERMIT\2129 CG-50X.dwg USER:Bryan DATE:Aug. 25 2016 TIME: 01:56 pm

NYLOPLAST BASIN DESIGN INFORMATION (MH1 THRU MH9)

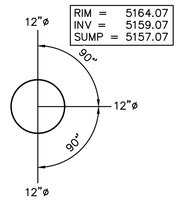
SCALE: N.T.S.



RIM = 5165.39
INV = 5160.39
SUMP = 5158.39

MH1

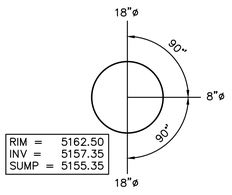
18"ø NB, DOME



RIM = 5164.07
INV = 5159.07
SUMP = 5157.07

MH2

18"ø NB, SOLID



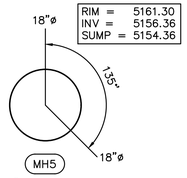
RIM = 5162.50
INV = 5157.35
SUMP = 5155.35

MH3

24"ø NB, SOLID

NOT USED

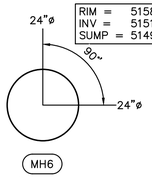
MH4



RIM = 5161.30
INV = 5156.36
SUMP = 5154.36

MH5

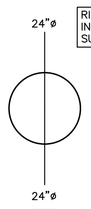
24"ø NB, SOLID



RIM = 5158.00
INV = 5151.80
SUMP = 5149.80

MH6

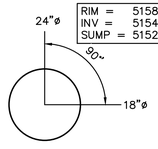
30"ø NB, DOMED



RIM = 5158.70
INV = 5154.00
SUMP = 5152.00

T5

24"ø NB, 2'X3' ROAD
AND HIGHWAY GRATE



RIM = 5158.90
INV = 5154.70
SUMP = 5152.70

T6

30"ø NB, 2'X3' ROAD
AND HIGHWAY GRATE

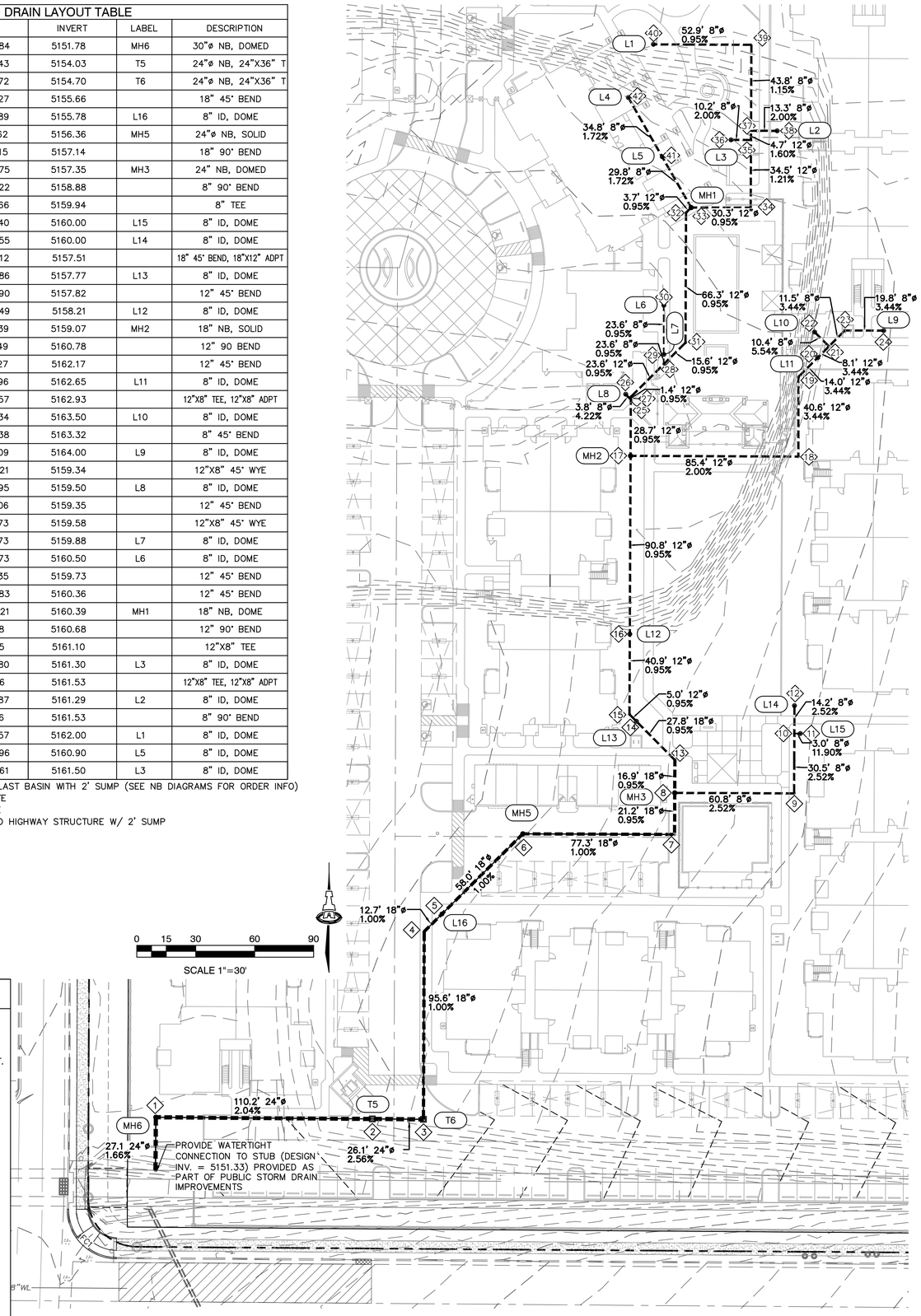
SOUTH STORM DRAIN LAYOUT TABLE					
Point	X	Y	INVERT	LABEL	DESCRIPTION
1	1540486.7313	1524794.7784	5151.78	MH6	30"ø NB, DOMED
2	1540596.9091	1524793.9443	5154.03	T5	24"ø NB, 24"X36" T
3	1540622.9345	1524793.7472	5154.70	T6	24"ø NB, 24"X36" T
4	1540623.3365	1524889.3427	5155.66		18" 45° BEND
5	1540632.3481	1524898.2789	5155.78	L16	8" ID, DOME
6	1540673.5202	1524939.1062	5156.36	MH5	24"ø NB, SOLID
7	1540750.7274	1524938.7815	5157.14		18" 90° BEND
8	1540750.8163	1524959.9375	5157.35	MH3	24" NB, DOMED
9	1540811.5498	1524959.6822	5158.88		8" 90° BEND
10	1540811.6780	1524990.1666	5159.94		8" TEE
11	1540814.6779	1524990.1540	5160.00	L15	8" ID, DOME
12	1540811.7366	1525004.3455	5160.00	L14	8" ID, DOME
13	1540750.8872	1524976.7812	5157.51		18" 45° BEND, 18"X12" ADPT
14	1540731.2989	1524996.3886	5157.77	L13	8" ID, DOME
15	1540727.7783	1524999.9390	5157.82		12" 45° BEND
16	1540727.9501	1525040.7949	5158.21	L12	8" ID, DOME
17	1540728.3317	1525131.5439	5159.07	MH2	18" NB, SOLID
18	1540813.7021	1525131.1849	5160.78		12" 90 BEND
19	1540813.7021	1525171.7127	5162.17		12" 45° BEND
20	1540823.5590	1525181.5696	5162.65	L11	8" ID, DOME
21	1540829.2852	1525187.2957	5162.93		12"X8" TEE, 12"X8" ADPT
22	1540821.9875	1525194.5934	5163.50	L10	8" ID, DOME
23	1540837.3832	1525195.3938	5163.32		8" 45° BEND
24	1540857.0967	1525195.3109	5164.00	L9	8" ID, DOME
25	1540728.4523	1525160.2421	5159.34		12"X8" 45° WYE
26	1540725.8172	1525162.8995	5159.50	L8	8" ID, DOME
27	1540728.4579	1525161.5706	5159.35		12" 45° BEND
28	1540745.2149	1525178.1873	5159.58		12"X8" 45° WYE
29	1540745.2149	1525183.1873	5159.88	L7	8" ID, DOME
30	1540745.2149	1525208.1873	5160.50	L6	8" ID, DOME
31	1540756.2839	1525189.1635	5159.73		12" 45° BEND
32	1540756.5623	1525255.3783	5160.36		12" 45° BEND
33	1540759.1881	1525257.9821	5160.39	MH1	18" NB, DOME
34	1540789.469	1525257.888	5160.68		12" 90° BEND
35	1540789.614	1525292.375	5161.10		12"X8" TEE
36	1540779.4317	1525292.4180	5161.30	L3	8" ID, DOME
37	1540789.817	1525340.836	5161.53		12"X8" TEE, 12"X8" ADPT
38	1540802.8970	1525297.0187	5161.29	L2	8" ID, DOME
39	1540789.817	1525340.836	5161.53		8" 90° BEND
40	1540739.9148	1525341.0457	5162.00	L1	8" ID, DOME
41	1540744.4325	1525283.7896	5160.90	L5	8" ID, DOME
42	1540727.1731	1525313.9761	5161.50	L3	8" ID, DOME

XX" NB = XX" DIAMETER NYLOPLAST BASIN WITH 2' SUMP (SEE NB DIAGRAMS FOR ORDER INFO)
DOME = LOCKING DOMED GRATE
SOLID = LOCKING SOLID GRATE
T = NYLOPLAST ROAD AND HIGHWAY STRUCTURE W/ 2' SUMP
ID = INLINE DRAIN
ADPT = PIPE ADAPTER

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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Albuquerque, New Mexico

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LICENSED PROFESSIONAL ENGINEER
08-24-16

TITAN DEVELOPMENT
ALLIANCE RESIDENTIAL COMPANY

REVISIONS

SECOND CITY SUBMITTAL

DATE: AUGUST 24, 2016 ORB # 15-212

CG5.3

STORM DRAIN DESIGN AND DETAILS 2 OF 2